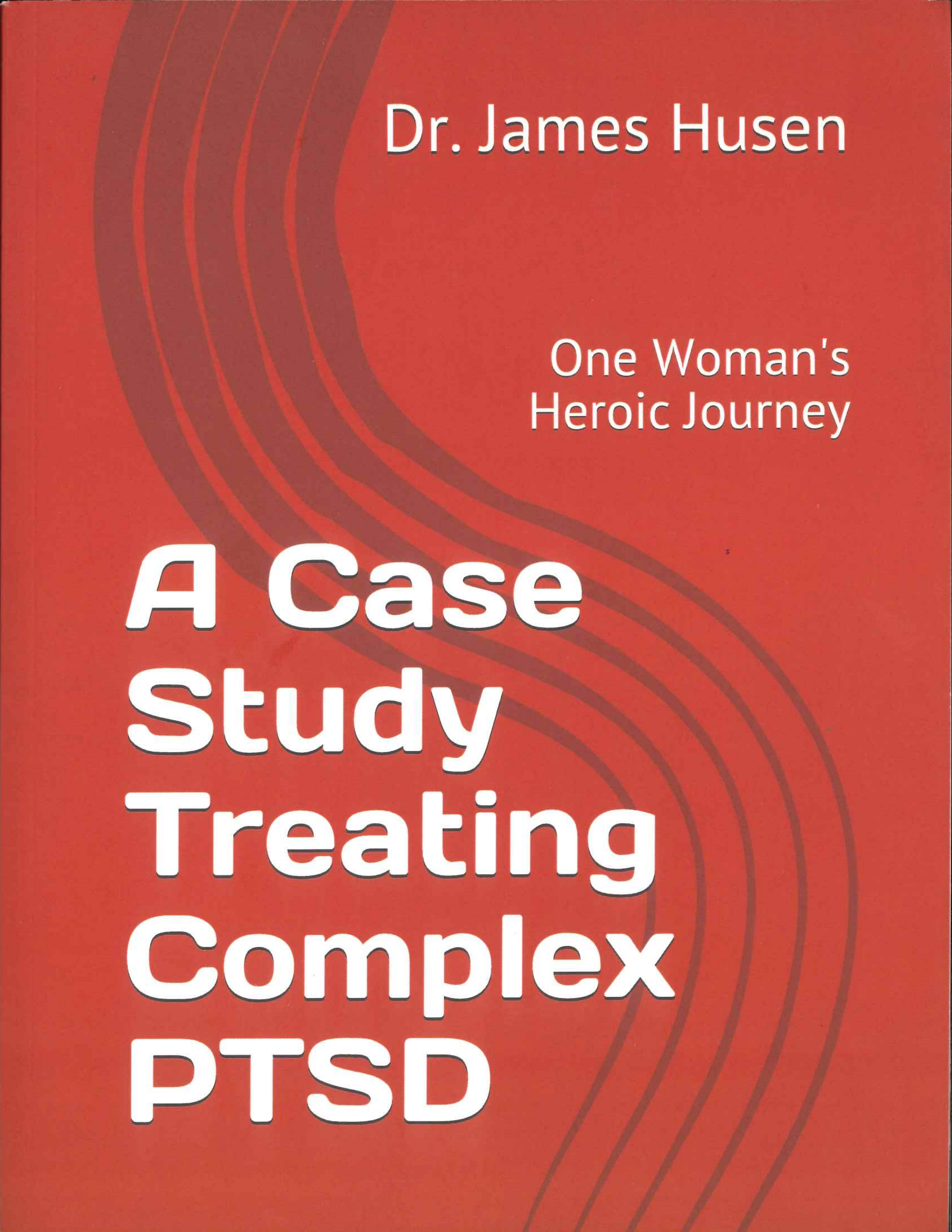

Dr. James Husen

One Woman's
Heroic Journey

A Case Study Treating Complex PTSD

A Case Study Treating Complex Post Traumatic Stress Disorder

One Woman's Heroic Struggle with Abuse

by

Dr. James C. Husen, Esq., LMFT, Psy.D.

DEDICATION

I thank Dorothy, my wife, who encourages me to find my true self in my work and relationships. We have walked the path of life together for 30 years adding two children who are now adults. Our daughter added a grandchild to the family five years ago whom we adore. Dorothy models posttraumatic growth for me. I dedicate this book to her.

I also thank Avis Attaway who provided the best supervision a Marriage and Family Therapist Intern could have. When I began treating Kris[1] as an Intern Avis was my supervisor until May 2015 when I received my license as a Marriage and Family Therapist. Avis' clinical wisdom and passion for healing traumatized people inspires me to grow in the healing art of psychotherapy. I also dedicate this book to Avis.

Finally, I thank my client Kris. She has taught me so much in treatment making this study and writing project possible. She devoted herself to working with me week after week for around two years altogether and I'll tell you now—she's doing alright and even has her son back. Her commitment to our therapeutic relationship enabled me to grow and develop as a scholar and clinician. This book is also dedicated to her.

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[1] Kris is a pseudonym the client chose. Identifying information about the client has been changed throughout this case study to protect privacy.

PREFACE

As a busy Family Law Attorney and now more and more a busy licensed Psychotherapist I have been intrigued by the devastating impact trauma has on people. As you read this book I hope you will find it answers questions for you such as why am I the way I am? What can I do about it if I want to change in some way? My time with Kris as my client where I tried just about everything under the sun with her and studied what I felt was the entire panoply of literature and research on the issue of trauma my life deepened. I hope by reading about Kris' journey as seen through my eyes and the research I conducted as her psychotherapist you might feel some of the joy of discovery and enlightenment I felt in writing the book and treating my client. I also hope you will believe as I do that trauma can result in growth and result in a better you. Also, I hope you will like Kris as I certainly do. In fact—spoiler alert—she's actually doing pretty good these days and she even regained full custody of her son.

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I.

Overview of the Study

This case study presents the psychotherapeutic conceptualization and treatment of a 55-year-old woman diagnosed with Complex Post Traumatic Stress Disorder (Complex PTSD).

A Brief Introduction to the Client

When Kris arrived for her initial consultation she was in the middle of a nasty divorce, having been married to a "psychopath," as she described him. I noted she shuffled as she made her way from my waiting room to my office. Her head drooped, her shoulders slumped, her movements were slow, and she seemed listless or in pain. On my clinical intake sheet she wrote, "I'm screwed up." Her uncombed hair, drab clothing, and sullen face corroborated her personal diagnostic assessment.

Her primary care physician's letter referring Kris to outside therapy addressed "to whom it may concern" listed 21 diagnoses, including vasospastic pain disorder with psychological factors, panic disorder, gastro-esophageal reflux disease (GERD), non-ulcerative functional dyspepsia, weakness of hand, depression and fibromyalgia. The doctor's note listed 18+ different prescriptions, including narcotics for pain, Xanax for anxiety and Ambien for sleep, all of which Kris used frequently and continuously.

Kris has three children. Her daughter who is in her mid-thirties. Her two sons who are in their early thirties and her youngest son who is 15. Kris has been disabled since she was 22 when she was involved in a car accident that required several back surgeries and subsequent continuing/chronic back and neck pain.

In our first session, Kris outlined a long list of trauma experiences; beginning with witnessing her father beat her mother nearly to death when she was only four. Kris had watched her biological father repeatedly strike her mother in the face while her mother was lying motionless on the ground. Her father also hung a noose in the garage telling Kris it was for her mother when Kris was 6.

In spite of Kris' first-hand knowledge and memory of events, her father repeatedly denied they ever happened and told Kris she was "crazy" throughout her childhood. Remarkably, Kris considered her childhood as "pretty normal."

Later sessions with Kris uncovered relational trauma stacked on other relational trauma. She felt emotionally exhausted and betrayed by her husband (now ex-husband) who literally "butt-raped" her and verbally abused her throughout their 24-year-marriage. In the divorce he gained custody of their youngest son (age 15) and moved away to Oregon by characterizing Kris as an emotionally dysregulated prescription drug addict.

Kris also seemed unresolved over the deaths of her mother and stepfather (both to lung cancer) within two years of one another about 14 years prior to treatment. About 5 years prior to our meeting, her middle son's arm had been severed in a motor vehicle accident. Kris found the arm immediately after the accident and subsequently suffered debilitating images of her son's arm lying in a drainage ditch.

Kris' childhood recollections involved curious contradictions when it came to her mother. Kris described her mother as extremely well put together. She had been in business, always looked immaculate, and was president of the Parent-Teacher's Association. On the other hand, at about age 6, Kris remembers feeling the need to protect her mother from her father, who had taken them to court several times to get custody. Her father had routinely acted with extreme behaviors such as beating Kris' mother unconscious, and emotional abuse such as hanging the noose in the garage; but at the end of weekend visits she remembers her father routinely sobbing and telling her he would never see her again.

The similarities between her own divorce with and her experiences as a child were curiously entirely outside her awareness. Nevertheless, her court battles over custody, support, and property division, triggered deep feelings of shame related to Kris' own childhood; and implicit feelings of shame, frustration and futility associated with a two year ordeal 20 years earlier, when her older children (the son with the severed arm, her oldest son and her daughter had been taken away from her for a short while on false allegations of ritual sexual abuse in the wake of the McMartin Preschool scandal. She and her husband had been required to attend weekly parenting classes for a year before Child Protective Services (CPS) withdrew from monitoring their family.

Talbot (2001) explained how, in the 80s, a *witch-hunt* mentality had developed across the nation (see also Friedman, 2013, who outlined forensic lessons learned by comparing McMartin to the Salem Witch Trials). Kris had grown up believing in the inherent justice of the American system of government, and her experience with Child Protective Services (CPS) in her late twenties shook her world view. Falsely accused, she had experienced terror and deep wounds of outraged justice when CPS had taken her children and when they continued to threaten to take them for about a year thereafter. These wounds of outraged justice resurfaced in the divorce proceedings.

Most recently, her son (the one who had lost his arm) was arrested and charged with child abuse. This event carried what were to me obvious triggers of implicit and explicit memories and states of mind relating to Kris' life history which became a focus of treatment. Her son's arrest also triggered deep feelings of shame and inadequacy as a mother.

Kris' core beliefs in a just world as it related to her parenting were further challenged by the court’s siding with her ex-husband in her divorce when the judge allowed Earl to move to Oregon with their youngest son. Through the course of treatment, Kris came to the realization that she was taking too many prescription drugs. With her doctor’s assistance she entered into an inpatient detox program. Earl used this event to paint Kris as a prescription drug addict and the judge agreed. Adding to Kris’ difficulties, she had a very hard time regulating her emotions and expressing herself in court before the judge—who, I think it relevant, was male. Kris was placed on supervised visitation and Earl moved with their son out of state.

Kris’ Case Conceptualization

Conceptualizing Kris’ case included understanding how early and ongoing trauma and attachment-related experiences affected her biopsychosocial developmental trajectory. This included understanding the neurophysiological effects of repeated unresolved trauma upon her body’s homeostatic stress-response related processes. Additionally, conceptualizing her case involved understanding how these homeostatic stress-response related processes impacted the meaning Kris attributed to them and the phenomena of her life (Aldwin, 2007; Crane, Ebner, & Day, 2013; Cannon, 1915; Lazarus, 1991).

Persons diagnosed with Complex PTSD experience increasing frustration due to a growing inability to deal with new life challenges (Mazure & Druss, 1995). Neurological sensitization, emotional dysregulation, and associated dysregulation of the Hypothalamic, Pituitary, Adrenal (HPA) Axis and overall stress response system of the individual accumulate to impair adaptive functioning (Perry, 2006; Perry, Pollard, Blakely, Baker, & Vigilante, 1995; Scaer, 2005, 2007; Schore, 2003a). These processes are compounded by the way in which new experiences trigger implicit memories of traumatic material and their associated automatic/repetitive behavioral repertoires, which further blights adaptive functioning in the present (Friston, 2010; Shapiro, 2007; Solms, 2013).

Persons suffering Complex PTSD find themselves unable to access their resilient selves, instead engaging in maladaptive impulsive behavior dissociated from active monitoring and awareness (Janet, 1907/1920). Siegel (2010) described this phenomenon as the product of a lack of integration resulting in either of two polar extremes of experience: chaos or rigidity.

Further compounding the developmental outcome of trauma, Damasio (1994) posited the self as consisting of two sets of representations associated with neural activation: 1. Autobiographical information both past and recent past; and, 2. Somatic representations of self (p. 239; see also Molnar-Szakacs & Uddin, 2013 who call these two domains of the self the Default Mode Network and the Mirror Neuron System, respectively). Childhood trauma fragments both of these primary constituent parts of the self. Kris, having endured trauma throughout her life, understandably wrote upon my intake sheet: “I’m all screwed up.”

In several of her early sessions Kris said that she wanted to help her children become self-sufficient, so she could then kill herself knowing they’d be alright. Her suicidal ideation had conditions precedent. Luckily for me, those conditions were not likely to be satisfied any time soon. While we were establishing rapport early in treatment she did not smile, appearing habitually sullen; and her carriage gave the effect of a fragile, thin, hunched-up elderly woman with severe osteoporosis.

Later, after our relationship was firmly established, I shared research findings with her on *embedded cognition,* that postures and facial expressions influence and enhance enthusiasm and energy on the good side, and feelings of anger and frustration on the bad (Jorgenson, 2006; Kraft & Pressman, 2012; Nair, Sagar, Soller, Consedine & Broadbent, 2015).

During most of the first year of therapy, Kris arrived with a new crisis every week--ranging from car problems, to her dog being injured in a fight and having to be euthanized, to her son being arrested and potentially facing years of incarceration on child abuse charges. Once our therapeutic relationship had grown to where I was sure she knew and trusted my good will, I called her crises COWs—crises of the week, to inject humor and emphasize that problems do not have to be overwhelming.

Humor, even educational humor, must be used carefully and considerately because of its potential for triggering a flood of transference-related shame, which many clients in treatment experienced in childhood with their mothers and fathers. Nevertheless, a growing body of scientific evidence corroborates common knowledge stretching back to Biblical times that "a merry heart doeth good like a medicine" (Proverbs 17:22). Summarizing the research, Agarwal (2014) pointed out that mirthful laughter:

> 1. Improves several health parameters, including stress and anxiety, immunity, pain, and cardiovascular health. It improves the psychological, social and spiritual quality of life in patients. Overall, it improves patient care.
> 2. Improves physician-patient communication.
> 3. Reduces stress in the healthcare giver.
> 4. Increases motivation and improves comprehension in medical education.
> 5. Keeps medical lectures and literature interesting (p. 22).

Agarwal further wrote that laughter is "free, always available, practically without any contraindications or side effects and is a pleasing experience" (Ibid; See also, Bennett

& Lengacher, 2006, 2006a, 2008, 2009 for excellent reviews and Bennett, Zeller, Rosenberg & McCann, 2003 regarding laughter and the immune system, i.e.: natural killer (NK) cells).

Kris thoroughly enjoyed watching gruesome true life crime shows on television. The significance of this activity involves Freud's (1920/1961) formulation of the repetition compulsion as an almost always ineffectual means for gaining mastery over trauma that he formulated after treating World War I soldiers plagued by repetitive nightmares of battlefield gore. In keeping with Argarwal et al., I encouraged Kris to counterbalance her gruesome tastes with some comedy. Interestingly, as she began to improve about 20 months into treatment, she told me that she had started to do just that. Namely, she began taking responsibility for her moods and intentionally watched some comedy because, as she herself stated, she needed a good laugh.

A core feature maintaining Kris' symptoms involved a deep sense of self as "ineffective" and "defective" (her words), linked to emotional dysregulation (Fosha, Paivio, Gleiser, & Ford, 2009, p. 288; Gleiser et al., 2008; Lamagna & Gleiser, 2007). Some nuances associated with Complex PTSD include traumatic underlying experiences perceived not only as threats to survival (prognosticating PTSD) but as "threat[s] to self-integrity" (Fosha, et al., p. 286), and as personal betrayals (Courtois & Ford, 2009, p. 25; Ross & Halpern, 2011).

As set forth above, Kris' relationship with her parents was not "pretty normal"; rather, she was subjected to extreme conditions which threatened her *self-integrity* and involved *personal betrayal* throughout her childhood with both parents.

As I discuss below, I assessed Kris by administering to her the Adult Attachment Interview (AAI) to Kris (George, Kaplan & Main, 1996). I am also certified to score

AAI's (Main, Goldwyn, & Hesse, 2002). Kris retained a disorganized state of mind with regard to attachment with both parents. She was extremely dismissive and actively derogative of her father—*punitive controlling*. With her mother she was both anxiously preoccupied—*solicitous caregiving*—and extremely dismissive, which led to a "cannot classify" second attachment category (Hesse, 1996).

Kris' constellation of symptoms developed over a lifetime adapting to overwhelming stressors in her life. Her adaptations began most saliently with her witnessing high levels of chronic domestic violence (DV)/Interpersonal Partner Violence (IPV) perpetrated by her father upon her mother as an infant. I hypothesized that Kris' affect dysregulation observed early on in treatment before she was better able to regulate attentional and accordingly affective processes of her mind involved a genetic vulnerability to the stressors she encountered in her family of origin.

This beginning laid down a developmental pathway which not only described her life as seen from the outside but also the neurobiological pathways of her nervous system and its homeostatic processes. Almost immediately I realized cognitive behavioral therapy wasn't going to help Kris. As a fresh and new Marriage and Family Therapist Intern, I attempted to use Greenberger and Padesky's (1995) *Mind over Mood* with Kris. However, I quickly realized her issues involved more than automatic negative thoughts. In fact Kris was familiar with the workbook itself as it had been a part of unsuccessful treatment with another therapist in the past. I am grateful to my supervisor, Avis Attaway, whose decades of intensive study and work with trauma clients gave me direction and encouragement with Kris as she proved to be an exceedingly complex yet rewarding patient.

Young, Klosko and Weishaar (2003) explained that clinical experience demonstrates that Cognitive Behavior Therapy (CBT) doesn't reach people with underlying personality disorders. Patients such as Kris with Complex PTSD violate basic assumption informing the effective use of CBT namely motivated compliance with homework assignments, ability to access and regulate salient thoughts and emotions through mental monitoring and self-talk. CBT also assumes a level of mental flexibility people who have developed personality disorders simply do not possess at the beginning of treatment.

As discussed in detail below, clients/patients, such as Kris, presenting with Complex PTSD stemming from developmental pathways established early in life demonstrate clinically significant disturbances in the following six areas of functioning: 1. Affect and Impulse Control; 2. Attention and Consciousness; 3. Self-Perception; 4. Relationships with Others; 5. Somatization; and, 6. Systems of Meaning.

Diagnosis

In section II of this paper, I highlight the difficulty clinicians had with trying to squeeze their patient/clients' symptom constellations associated with chronic interpersonal stress into the *DSM-III* (1980)'s PTSD categorical criteria. Then, in section III of this paper, I discuss my own difficulty with diagnosing Kris with PTSD using the *DSM-5* (2013)[3]. This difficulty is somewhat alleviated by Section D of the *DSM-5* (2013)'s criteria for PTSD as further informed by Goodman's (2012) concept of a trauma spectrum. I position Complex PTSD between PTSD (which under the *DSM-IV-TR* (2000) would have been an Axis I mental disorder) and Borderline Personality Disorder (BPD) (which was treated as an Axis II separate category under the *DSM-IV-TR* (2000).

---

[3] According to the American Psychiatric Association the DSM-5 (2013) dropped the traditional Roman numerals associated with all previous version of the DSM to facilitate easier publication of updated versions of the DSM as new research data justify updates (http://www.dsm5.org/about/pages/faq.aspx#8).

I also discuss neuroimaging in section III of this paper which corroborate conceptualizing Complex PTSD as a personality disorder developed through the course of a person's life involving neurobiological homeostatic processes that have developed to adaptively meet the stressors of the patient's life. Kris' PTSD diagnosis therefore defies the underlying assumptions associated with PTSD as originally formulated in the *DSM-III* (1980).

Accordingly, I present here what Kris' diagnosis would have looked like under the multiaxial system utilized under the *DSM-IV-TR* (2000):

Axis I:

296.90 Mood Disorder Not Otherwise Specified, Severe With Some Catatonic and Predominantly Melancholic Features;

300.00 Anxiety Disorder Not Otherwise Specified, Mixed Anxiety and Depression;

300.81 Somatization Disorder;

307.89 Pain Disorder with Psychological Factors and a General Medical Condition; and,

304.10 Anxiolytic Use Disorder.

Axis II:

301.9 Personality Disorder Not Otherwise Specified.

Axis III:

Pain Disorder with Psychological Factors

Migraine Headaches

Gastro-Esophageal Reflux Disease (GERD)

Weakness of Hand

Non-Ulcerative Functional Dyspepsia

Fibromyalgia

Axis IV:

V313.82 Identity Problems

V62.89 Religious or Spiritual Problem

V62.81 Relational Problems Not Otherwise Specified

Axis V:

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Treatment Aims and Interventions

Treatment Aims. Kris's treatment goals involved transforming her post traumatic self into her post treatment *true self*—i.e. moving from disorganized/insecure to secure attachment in how she relates with self and others (Ma, 2008). Central to the move from insecure to secure attachment is the relationship with the therapist, openly discussed as a prototype relationship for the client to generalize in her everyday life with others (Clarkin, Levy, Lenzenweger, & Kernberg, 2007; Levy et al., 2006; Rogers, 1961). The importance of the relationship, itself, as a means of therapeutic change can be seen in study findings that the therapeutic relationship accounts for 30% of the variance in positive outcomes in psychotherapy; whereas, psychotherapeutic technique and the placebo effect account for 15% of the variance in positive outcomes (Mones & Schwartz, 2007, p. 315).

Kris' most ambitious long range goals in treatment with me included: (1) Accessing and regulating her emotional experience and expression (Fosha, Siegel, & Solomon, 2009) and dyadic regulation of affect (Ginot, 2012; Schore, 1994. 1997a, 2003, 2003a) ; (2) Cognitively restructuring her core beliefs about herself and others. It was and is my position that Kris's core self would heal with consistent affect regulation and a consequent neuropsychological integration (Cozolino, 2010; Gabbard, 2000; Kandel, 2007; Siegel, 2010, 2010a, 2012; Schwarz, 2009, 2017; (3) Empathic reflection and leadership of the self and its parts (Fonagy, Gergely, Jurist, & Target, M., 2004; Linehan, 1993, 1993a; Schwartz, 1993; (4) Somatic awareness and processing (Levine, 1997, 2010; Ogden, Minton, & Pain, 2006; Rothschild, 2000; Scaer, 2005, 007) (5) Restoring and facilitating her system of meaning (Frankl, 1997); and, (6) Assisting Kris to realize a transformation in her personality and character. (Costello, 2013; Fosha, 2003; Gabbard & Horowitz, 2009; Heard, Korslund, Tutek, Reynolds, Lindenboim, 2006; and, Siegel, 2010).

Treatment interventions. As will emerge in this paper, treatment interventions involved neurobiologically informed in-session exercises aimed at each of six relevant symptom constructs defining Complex PTSD. These exercises included an eclectic blend of memory reconsolidation techniques aiming at unlocking and reconsolidating traumatic memories and outdated meanings associated with their maladaptive behaviors and symptoms. These techniques included the use of Eye Movement Desensitization Reprocessing (EMDR), Brainspotting (Grand, 2013), and the Comprehensive Resource Model (Schwarz, 2009, 2017). Ecker, Ticic and Hully (2012) recently pointed out that the active ingredient in each of these methods of trauma treatment involves memory reconsolidation which I discuss in section II regarding Pavlovian fear conditioning.

When our treatment began, I used EMDR with Kris. Later, about 3 months in I began using Brainspotting and now for the last year and a half, I have used the Comprehensive Resource Model (CRM). This progression of technique reflects my own growth and development as a mental health professional through the course of treatment with Kris over the past 23 months. The Comprehensive Resource Model (CRM) incorporates experiential techniques which blend imagery, somatic awareness, breathing-techniques, along with active meaning making and eye position anchoring skills. These techniques assisted Kris by helping her reset her overly sensitized neurobiologically based stress reactivity system and reconsolidate previously traumatic memories into more adaptive orientations to the present.

As Kris began to make progress with Comprehensive Resource Model techniques and she began to enjoy greater emotional regulation and attentional capacities, I introduced her to mindfulness and light exercise. As Kris engaged in the practice of mindfulness and light exercise (mostly walking in her neighborhood and with me during our sessions) she began to experience a new and improved relationship with herself, how she perceived herself and with others. The somatic and emotional awareness associated with both the Comprehensive Resource Model and mindfulness reduced Kris' somatization and as of the writing of this paper has begun to exchange her extreme negativity for a more realistic optimism. She is even talking about God in a way that reflects a more balanced outlook on life.

Benefits of the Study

In this case study I applied contemporary/forward-looking and historically demonstrated integrative cognitive, behavioral, somatic, and emotionally focused treatments to a client who had hitherto not responded to treatment--she had seen several cognitive behavioral talk therapists over the years in her managed care system without apparent treatment progress.

The complexity of Kris' case emerged in our first session. This paper reflects my search for understanding to better assist Kris and I hope it will benefit others working with clients deeply wounded by chronic personal loss and betrayal beginning early in life and continuing unabated into adulthood. Complex PTSD is a “robust predictor of poor inpatient PTSD treatment outcome” (Ford & Kidd, 1998, p. 754). Better understanding the disorder in treatment may soften the statistics.

In the following section, I weave a history of stress/trauma disorders with more recent research to understand Kris’ condition and treatment. For example, Cannon, Pavlov, and Selye all conducted basic research between the two World Wars, which inform modern concepts of stress management and somatization. Thus, before discussing Complex PTSD relative to Kris and her treatment, I present the following historical literature review in section II.

II.

Historical Literature Review of Psychological Stress / Trauma Related Disorders

Scientific progress requires a working memory of the past. Without awareness of the past, rigid oversimplifications and unconscious pre-potent reactions govern decisions rather than adaptive reality-based plasticity. Santaya's (1980/1905) famous dictum relates to this truth --"those who cannot remember the past are condemned to repeat it" (p. 92).

Recurrent Themes in the Literature Pertaining to the History of Stress and Trauma Disorders

Three themes run through the historical literature of stress and trauma related disorders: victim blaming; gender issues; and, Cartesian dualism.

Victim blaming. Trauma survivors suffer blame for their misfortunes (Brown, 1995, p. 107). Kris certainly did and we talked about it in treatment. Her disability began with a back injury when she was 22; however, over time, the physical injury became more mental than physical which made it worse for her. She said it would be easier if she was an amputee because then people would see her disability and sympathize instead of judge. Lerner (1980) wrote that we blame victims because the alternative challenges deep social and religious beliefs in the predictability of life. When someone is born blind (John 9:2, King James Version)[4] or a natural disaster strikes (Luke 13:4) personal morality invariably has no causative connection (Ecclesiastes 9:11). Nevertheless, just like Jesus' disciples did in the versus just cited, we, as a society, tend to attribute some blame to those who are raped, abused or hurt.

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[4] My reader will note that I freely quote from the Bible. This is because Kris espouses the Bible. If my client espoused any other system of meaning, I would make efforts to understand and learn that system of meaning and use it to connect with an important source of client resilience and possible client shame and dysfunction.

Janet (1907/1920) wrote that on account of societal victim blaming “hystericals are not lucky; their accidents are such that they are nearly always mistaken for crimes or tricks. Some were burnt on account of their fits or devil's claws, [and] others were sent to prison in order to be cured of their neurosis” (p. 192).

Unfortunately, dominant classes tend to confuse positive law where “people get what they deserve and deserve what they get” (Lerner, 1980) with natural law. It is a confusion that tends to justify inequitable societal power structures *ipso facto*. Positive law involves setting up a social system where people are rewarded or punished as they follow the rules set up by society for reward and punishment; whereas, natural law has to do with nature whose predictability has no causative connection to personal morality.

Trauma victims are often accused of malingering in forensic settings. Trimble (1985) called malingering (faking illness for secondary gain) “the bitter kernel found at the center of the whole issue of post-traumatic disorders in general” from the late 19th Century to the present (p. 10; See also, Oppenheimer & Rothschild’s, 1918— *The Psychoneurotic Factor in the Irritable Heart of Soldiers* which insinuated that Civil War veterans claiming Irritable Heart were malingering).

Positive law involves laws enacted by social authority to govern a society, e.g. the criminal justice system codified in the Penal Code. Natural law involves observed and predictable phenomena determined through science or religion. Confusing positive law with natural law happened after the fall of Rome at the beginning of the Dark Ages. After Alaric and the Visigoths sacked Rome the general consensus among the *educated* at the time was that Rome fell because it had replaced its older gods for the newer Christian God beginning with Constantine. St. Augustine’s *magnum opus, The City of God* (413-426 C.E./1955) was written to refute that idea which was premised in a widespread positive law/natural law causation fallacy. Augustine wrote that the justice of human society (positive law) must be distinguished from the mystery of history where the meaning of things is a matter of divine revelation (Augustine, 413-426 C.E./1955).

Such existential issues resonate with trauma victims, Kris included. One of the defining features of Complex PTSD discussed below involves the impact of trauma on a person's system of meaning/religion or spirituality. Many fruitful discussions with Kris involved talking to her about *how* her views about God, self and others have changed in connection with the traumas (and triumphs) of her life.

Society's tendency to blame and accuse victims of trauma with malingering and/or inferiority occupied an important place in our treatment. We all need to belong to society and feel like we have something to contribute (Ansbacher & Ansbacher, 1956). Kris felt shunned by society for her disability. We spoke about this often in our sessions as it troubled her a lot. We also spoke about how she felt like the church she sacrificially devoted herself to as a teenager and young adult also shunned her by judging her when she was accused of ritual sexual abuse in the 80s in the wake of the McMartin scandal. These realities assaulted and undermined Kris' system of meaning which needed to be discussed and understood by her in treatment (Brown, 1995; Burrell, 2008; Janoff-Bulman, 1992, pp. 18-21; Jung, 1969; Lerner, 1980; Lippert-Rasmussen, 2009; Loseman & Bos, 2012; Van den Bos & Maas, 2009; and, Trimble, 1984).

Several of our sessions centered on Kris' sense of isolation and anger at feeling judged for not being able to "pull [her] shit together." Kris' anger was directed not only at "society," but also at a part of herself that judged her other parts as weak, hurt, and traumatized. Helping her become aware of extreme views and facilitating a more accepting and compassionate internal dialogue concerning herself was an important part of treatment. Psychologically speaking, the benefits of affect regulation and adaptive function relate to this sort of empathic/compassionate self-acceptance (Schwartz, 1995).

Gender issues. Social/cultural values and the politics associated with the distribution of public and private resources play prominent parts throughout the history of the diagnosis and treatment of human stress reactions. The politics of budgeting limited resources to promote the general welfare determines the allocation of government funds to research and clinical practices serving the community (van der Kolk, 2013, pp. 156-160).

Regarding traumatic stress reactions and soldiers, it wasn't until 1980 that American social, cultural, and political forces sufficiently coalesced to recognize Posttraumatic Stress Disorder (PTSD) as found for the first time in *The Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; *DSM-III;* American Psychiatric Association, 1980) (Bloom, 2000). The women's movement of the 1960s and 1970s also established a social/cultural foundation for research. Recognizing the rights of women and children regarding interpersonal violence (IPV) involved a foundational paradigm shift both in academia and society itself (Collins, 2009; Friedan, 2013; Herman, 1997).

Research into and discovery of the *Rape Trauma Syndrome* (Burgess & Holstrom, 1974), *Battered Women's Syndrome* (Walker & Lenore, 2009) and the *Child Sexual Abuse Accommodation Syndrome/Battered Child Syndrome* (Summit, 1983, p. 189) only became possible after sufficient cultural and political acceptance of basic tenets of the women's moment had taken place. All three studies have found credibility in the courts and are frequently referred to by expert witnesses to explain otherwise recondite behavior to judges and juries in civil and criminal trials (Millman, Holzman, Tarlow, & Sevilla, 2015).

Masson, (2012, 2013) attributed Freud's rejection of the *seduction theory* of trauma, in the etiology of his almost-exclusively female hysteria patients in the late 19th Century, to a patriarchal Victorian world view which Freud, himself, underestimated. Freud's *seduction theory* would have given women and children the power to destroy the reputations and careers of male perpetrators of child and spousal abuse. Herman (1997) commented on Freud's repudiation of his *seduction theory* that "repression, dissociation, and denial are phenomena of social as well as individual consciousness" (p. 9).

It was not until 1994 that rape, child abuse, and Interpersonal Partner Violence (IPV)/Domestic Violence (DV) were understood to result in PTSD as defined in the DSM-IV (1994) (Friedman et al., 2007, p. 4). More recently, efforts are underway to recognize *adult* Complex PTSD (Complex PTSD) and *childhood* Developmental Trauma Disorder (DTD) as diagnoses in their own right in future editions of the *DSM* (Cloitre, et al., 2009; Herman, 1992, 1997, 2012; Pynoos, et al., 2009; Resick, et al. 2012).

Cartesian dualism (i.e. Separating Mind from Body). Society clearly prefers the certainty associated with physical injuries and organic markers over functional or psychological symptoms (Chamberlin, 2012; Freud, 1920/1950, p. 33; Lecky, 1945/1951; Mace & Trimble, 1991; Sarno, 2007). In the courts, for example, as late as 1958 in California, plaintiffs claiming mental distress in the absence of a physical injury were summarily denied compensation for their losses in personal injury cases (*Reed v. Moore*, 1958). Five years later, the court reaffirmed this bar to recovery because of the potential for fraud and the difficulties associated with detecting such fraud (*Amaya v. Home Ice, Fuel & Supply Co.*, 1963). It wasn't until 1968 that California recognized compensable psychological distress without a physical injury (*Dillon v. Legg*, 1968; Witkin, 2005, pp. 272-273).

During the early 20th Century, American, British, and French societies came, for the first time, to view courage as bravery, while, at the same time, feeling fear, rather than as an absence of fear; and the taboo against admitting fear relaxed over time. Also, it became more acceptable to be aware of and to express emotions without embarrassment, and without accusations of weakness. This growing acceptance of emotional awareness and expression helps explain the near disappearance of hysterical symptomatology among both military and civilian populations through the course of the 20th century. Expressing fear, anxiety, or other psychological processes became acceptable; emotional expression became commonplace; and, as a result, hysterical somatization largely disappeared (Kardiner & Spiegel, 1947, pp. 3-7; Shorter, 1992).

Others attribute the decline of hysteria in trauma survivors through the course of the 20th Century to a division of labor in the medical field—i.e., between neurology and psychiatry (Stone, Hewett, Carson, Warlow, & Sharpe, 2008). This view sees no diminishment in hysteria at all. This view asserts that hysterics are currently treated by neurologists, rather than psychiatrists and psychologists.

Relevant to this issue, in contrast to the Allies, German and Russian troops saw no decline in hysterical neuroses from World War I to World War II. Also, in contrast to the Allies, the Germans and the Russians in World War II permitted no talk of fear or of feelings among their troops (Stone, et al., 2008). These differences in outcome among the Allied and Axis troops seem to corroborate Kardiner & Spiegel's (1947) hypothesis on the relative disappearance of hysteria between World War I and World War II.

This coincidence of hysteria and emotional repression also lends historical weight to recent findings that patients like Kris, who have high levels of alexithymia and anxiously insecure attachment styles, have a higher prevalence of somatization than controls (Mattila, et al. 2008; Waller & Scheidt, 2006; Waller, Scheidt, & Hartmann, 2004).

Today, competent treatment of persons with Complex PTSD involves an integrated application of cognitive, behavioral, and psychodynamically informed interventions, as well as knowledge of neurophysiology, endocrinology, and the human stress response system (Friedman, Resick, & Keane, 2007, p. 9). Several researchers and clinicians (Badenoch, 2008; Everly & Lating, 2013; Miller, 1979) attribute better therapeutic outcomes to a deeper knowledge of these processes, and I share that view.

The *DSM-5* (2013) envisioned greater interdisciplinary collaboration and cross-modal assimilation in the treatment of traumatized clients (p. 309). Many physicians have begun publishing holistic philosophies of medicine, reflecting an underlying frustration with mind-body dualism which has dominated Western medicine for a hundred years. In general, these books gravitate towards the conflict theory of psychosomatic disease where "specific psychical conflicts engender specific mechanisms of physiological pathogenesis" (Everly & Lating, 2002, p. 55). This model attempts to build upon a clear link between Type A personality and coronary heart disease (Friedman & Rosenman, 1974); however, Everly and Lating, who reviewed the 7 top modern theories of psychosomatic disease, concluded "this is clearly the weakest" among the theories (p. 60).

Fundamentally, greater integration between neurology and psychiatry involves a growing appreciation for multifactorial causative variables in the etiology of both mental and physiological disorders. Cartesian dualism and Virchow's (1860) germ theory have given way to more systemic understandings of the disease process. Beginning around 1960 "the primary causes of death in the United States were no longer microbial in nature”—they were more systemic and obviously related to psychological factors such as overeating and chronic stress (Everly & Lating, 2013, p. 3).

Recent studies conceptualizing pain as a homeostatic affective regulatory process render fibromyalgia (from which Kris suffers), chronic fatigue syndrome, and irritable bowel syndrome (from which Kris also suffers) understandable and treatable with psychotherapy (Appelhans & Luecken, 2008; Figueroa, Kingsley, McMillan, & Panton, 2008—demonstrating the effect of exercise on autonomic function and improved fibromyalgia symptomatology; Tak et al., 2009—meta-analysis concluding insufficient evidence at this time to accept or deny the role of autonomic nervous system dysfunction in functional somatic disorders).

Studies such as these led me to incorporate walks into Kris’ treatment sessions with me, and gently model and encourage Kris to challenge herself to engage in moderate exercise outside our sessions. Cognitive function and neural plasticity improve with physical exercise (Kramer & Erickson, 2007; Voss, Nagamatsu, Liu-Ambrose, & Kramer, 2011); and a growing body of research supports the use of exercise interventions to promote mental health (Robinson, Buttolph, Green & Bucci, 2015).

Traumatic Stress Disorders Before the Industrial Revolution and the American Civil War (*circa* 1500 BCE to 1860).

Stress disorders are not new among humans. However, modern warfare and the demands of civilian life may exacerbate such conditions. Jacob, the Biblical Patriarch who lived *circa* 1500 BCE, has been diagnosed with PTSD (Birnbaum, 2007). Shay (1994) used Homer’s epic, *The Iliad* (*circa* 850 BCE), to communicate “an understanding of the specific nature of catastrophic war experiences that not only causes lifelong disabling psychiatric symptoms but can *ruin* good character” (p. xiii). Birmes, Hatton, Brunet, and Schmitt (2003) identified numerous examples of traumatic stress in Western canonical literature. However, prior to the American Civil War such descriptions are generally “restricted to literary or philosophical writings” and “could not, at the time, constitute a nosology” (Birmes, et al. p. 18; See also Birmes, Bui, et al., 2010 and Mackowiak & Batten, 2008).

Religion & pseudoscience (*circa* 1700 – 1800): Exorcism and magnetism. In the 17th and 18th Centuries most educated people attributed mental disorders to God *and* the natural world/physiology. For example, during the Salem Witch Trials (1692-1693) clergy identified signs of witchcraft, which physicians would then look for when determining whether or not to “make a diagnosis of witchcraft” (Friedman, 2013, p. 295). A sore on one’s skin—almost universal then—could easily be deemed a devil or witch’s mark which the people of the time viewed as “supernumerary nipples (or sores) that the devil’s agents would suckle” (Flotte & Bell, 1989). The interplay between religious authority and the science of medicine seen in the realm of 17th Century medicine continued into the 1700s, as shown in stories about Gassner and Mesmer in 18th Century Europe.

During the 18th Century a showdown took place between an older form of radical cure for souls (exorcism) and a newer one—magnetism. During Gassner’s (1727-1779) and Mesmer’s (1734-1815) lifetimes, society sanctioned both forms of treatment. However, the momentum among educated people in Europe at the time sided with Mesmer’s allegedly more scientific magnetizing methods.

The move in favor of science in Europe at that time can be seen in an official inquiry and admonishment of Gassner for using exorcism in 1775. Thereafter, he could only perform exorcisms upon specific referral from church leaders (Ellenberger, 1970, p.

56).

Mesmer's "scientific" method involved having patients swallow liquid intermixed with iron, and then placing strong magnets to the patient's stomach and legs (Ibid, p. 59). Mesmer's magnetic cures quickly fell out of favor, too; however, two centuries later, Transcranial Magnetic Stimulation (TMS) uses Magnetic Resonance Imaging (MRI) strength magnetic impulses to treat refractory depression with significant result—the current theory postulates that magnetic entrainment of electrons mechanically stimulates neural connectivity and neurotransmitter function in the left prefrontal cortex (Figiel, et al., 1998).

Phineas Gage (September 13, 1848 – 1860): From localization to understanding the neurobiological substrates of the self. On September 13, 1848, Phineas Gage sustained a serious injury while working on the railroad. As described by his physician an explosion drove an iron rod through the left side of his face and up through the top of his skull (Harlow, 1848, p. 389).

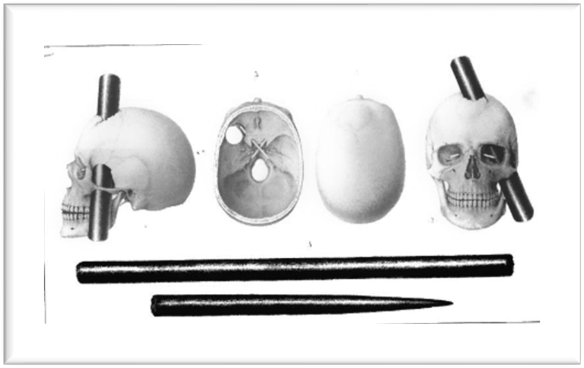


Figure 2.1. Artistic expression of Phineas Gage's injuries. Adapted from Bigelow, H. J. (1850). Dr. Harlow's case of recovery from the passage of an iron bar through the Head. *The American Journal of the Medical Sciences*, *16*(39), 13-22, p. 13.

Dr. Harlow's (1848) treatment of Gage began with attending to his physical well-being. Later, however, the mental, emotional, and spiritual sequelae of the injury occupied the doctor's attention. In 1868, Harlow wrote that about a year after the head injury had healed, Mr. Gage “was ‘no longer Gage’” (p. 14). Before the accident, Gage had been considered a responsible and reliable person. After the accident, he drank to excess, couldn’t hold down a job, and was considered irresponsible and profligate (Damasio, Grabowski, Frank, Galaburda & Damasio, 1994; Epstein, 1991, 2014).

Localization, phrenology & brain circuits. Gage’s injury had obliterated a large part of his Prefrontal Cortex, especially the Orbital Frontal Cortex (OFC), without apparent cognitive or physical impairment. However, the injury did affect his character (Damasio, et al. 1994). Gage’s condition raised questions about functional locality in the brain, where different parts of the brain implicate different roles in the cognitive and affective processes underlying consciousness and behavior (Damasio, 1994; LeDoux, 1996, 2002).

Harlow’s (1868) observation about Gage’s personality harmonized with phrenology’s view of the brain as having “sharply localized” functions (Ramachandran, 2011, p. 77). Brain mapping, discussed below, began with this assumption. However, as Ramachandran wrote, “It would be ludicrous to say that gambling or cooking are localized (although there may be aspects of them that are) but it would be equally silly to say that the cough reflex or the pupils’ reflex to light is not localized” (Ibid).

An emerging model of the brain posits a complex systemic interregional interplay of the different areas of the brain, working together in an integrated manner to produce attention and consciousness (Frangou, 2014). Research scientists mapping the human brain have developed increasingly sophisticated models of cognitive, affective, and behavioral function. Alterations in attention and consciousness, for example, involve “structural, functional and connective” neurophysiological activation, synchronization and patterning (Ibid).

Harlow's observations predated both Broca's (1861) work on areas of the brain involved in speech articulation, and Wernicke's (1874) research on speech comprehension.

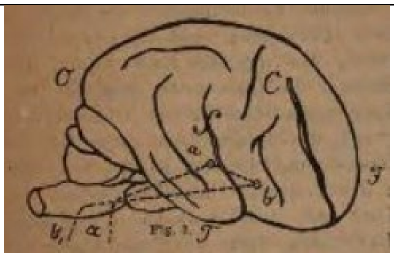


Figure 2.2. Wernicke's area. Adapted from Wernicke, C. (1874). *Der Aphasische Symptomkomplex.* Breslau: Kohn & Neigart, at p. 19. Retrieved from https://archive.org/stream/deraphasischesy00werngoog#page/n5/mode/2up

Harlow's case studies on Phineas Gage involved an early recognition of the importance of brain function to personality.

Childhood & personality. Psychoanalysts practicing in the early 20th Century studied their clients and established retrospective causation, observing connections between childhood experiences and adult personality. Perhaps the most famous and representative observation of this nature involved the anal retentive or anal explosive personality which Freud and others attributed to mishaps in development during toilet training (Freud, 1908/1959a; Abraham, 1923; Reich, 1931). The concept that early experience gives rise to psychological defenses that become embedded in the neurophysiological structure of one's personality was probably envisaged by Freud, himself, nearly a hundred years before brain imaging (Freud, 1966; Schore, 1997).

As I understand it, Kris' personality involves current traits (distinguishing qualities or characteristics) which "represent tendencies to manifest particular patterns of cognition, emotion, motivation, and behavior, in response to a variety of eliciting stimuli (Fleeson, 2001)" (DeYoung et al., 2010). Also, "these tendencies are posited to arise from regularities in the functioning of relevant brain systems" (Ibid). They developed over the course of her lifespan much like the immune system establishes an increasingly sophisticated repertoire over time (Millon,1981, 2011). That is, Kris' personality emerged from a unique dynamic interplay of her genetic, temperamental and environmental conditions.

Note the following composite pictures depicting *regularities in functioning of relevant brain systems* using McCrae and Costa's (2003) *Big Five* (Psy-5) personality traits (only four are captured in the following figure for reasons discussed below):

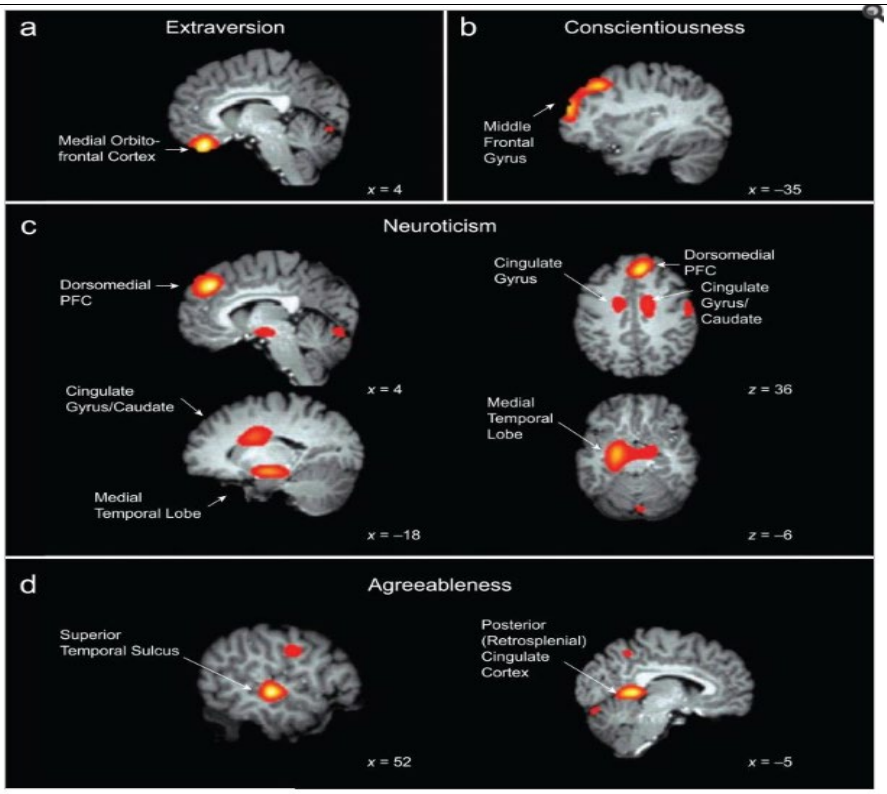


Figure 2.3. Composite Functional Magnetic Resonance Imaging (fMRI) scans of localized brain activity associated with personality traits. Brain regions in which local volume was significantly associated with (a) Extraversion, (b) Conscientiousness, (c) neuroticism, and (d) Agreeableness…. Coordinates indicate the locations of the brain slices. Color is related to effect size, with lighter color signifying a larger effect, and darker color signifying a smaller effect. PFC – prefrontal cortex. Adapted from DeYoung, C. G., Hirsh, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010). Testing predictions from personality neuroscience: Brain structure and the big five. *Psychological science*, *21*(6), 820-826.

Neurobiological function facilitates psychosocial function (Mayer, 2004). *Extraversion*, the “tendency to experience positive emotions” (DeYoung, et al., 2010) involves a Medial Orbital Frontal Cortex (mOFC) process—Phineas Gage lost this *tendency to experience positive emotions* when his medial orbital frontal cortex was nearly obliterated by the tamping rod and his subsequent change in character was probably related to that loss. *Neuroticism*, “the tendency to experience negative emotions” (Ibid) involves processes located in the Cingulate Gyrus, Caudate, and Medial Temporal Lobes. *Agreeableness*, “one’s concern for needs, desires and rights of others” involves the Superior Temporal Sulcus and the Posterior Retrosplenial Cingulate Cortex. And, *Conscientiousness*, the “tendency of individuals to inhibit or constrain impulses in order to follow rules or pursue non-immediate goals” involves the Middle Frontal Gyrus (DeYoung, et al.; Zerach, 2015).

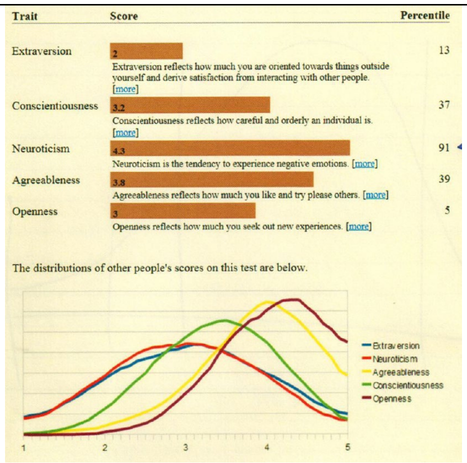
Interestingly, *openness to experience*, the fifth of the *Big Five,* which describes “the tendency to process abstract and perceptual information flexibly and effectively, [and] includes traits such as imagination, intellectual engagement, and aesthetic interests (DeYoung, Peterson, & Higgins, 2005)” lacks an identifiable location of activity (DeYoung, et al., 2010). In this sense *openness to experience* appears to involve the same neurobiological processes as executive control described in greater detail below (Dore, Zerubavel, & Ochsner, 2015, Frangou, 2014).

Both openness to experience and executive control engage the “dopaminergic system” which at the “conscious level” “[1] regulates positive motivational responses to novelty, driving exploration”; and, at the “preconscious level” [2] “decreases latent inhibition, rendering categories more flexible and allowing more of the complexity of the environment to become more salient…” Indeed, “at the higher cognitive level” [3] "dopamine facilitates the flexible information processing accomplished by the Dorsolateral PFC [Prefrontal Cortex]" and "may even affect the systems responsible for verbal or crystallized abilities, as memory retrieval" (Arnsten & Robbins, 2002). The Dorsolateral Prefrontal Cortex is also particularly associated with Openness/Intellect, as well as "multiple brain systems," including most notably the Dorsal Anterior Cingulate and the Ventral Tegmental Area (DeYoung, Peterson, et al., pp. 850-851).

Zerach (2015) found *openness to experience* ("the tendency to actively seek experiences, willingness to try new activities, intellectual exploration of ideas, and curiosity to explore the inner world") and *extraversion* ("positive affect, optimism, and sociability combined with high levels of energy, assertiveness, activity, and talkativeness") to be linked to post traumatic growth in children secondarily traumatized by their fathers who had been traumatized by their experience of being prisoners of war.

Early on, Freud and others recognized adult psychopathology and adult personality as neurobiological developmental outcomes. Because neuroimaging was impossible and a common language didn't exist in his time, Freud specifically chose to use literary metaphors from Greek mythology to communicate psychological principals (Schore, 1997).

Regarding Kris, her scores on the Psy-5 personality test reflect the impact of early chronic trauma. Note especially, her Neuroticism, Extraversion and Openness to Experience scores. These score reflect: 1. Hyperactivity in areas of the brain associated with the experience of negative emotion (neuroticism-- Cingulate Gyrus, Caudate, and Medial Temporal Lobes, 91st percentile); 2. Hypoactivity in areas of the brain associated with the experience of positive emotion (extraversion-- Medial Orbital Frontal Cortex, 13th percentile); and, 3. Hypoactivity in the integration of areas associated with a *willingness to try new activities, intellectual exploration of ideas, and curiosity* (openness to experience—suggesting pervasive neuromodulatory dysfunction, 5th percentile):



Trait	Score	Percentile
Extraversion	2 Extraversion reflects how much you are oriented towards things outside yourself and derive satisfaction from interacting with other people. [more]	13
Conscientiousness	3.2 Conscientiousness reflects how careful and orderly an individual is. [more]	37
Neuroticism	4.3 Neuroticism is the tendency to experience negative emotions. [more]	91
Agreeableness	3.8 Agreeableness reflects how much you like and try please others. [more]	39
Openness	3 Openness reflects how much you seek out new experiences. [more]	5

The distributions of other people's scores on this test are below.

Figure 2.4. Kris' Psy-5 Scores taken about 15 months into treatment. Test obtained at http://personality-testing.info/tests/BIG5.php

Kris and I discussed her scores and how they reflect unique neuroanatomical connectomes associated with the Psy-5 personality traits (Deisseroth, 2014; Sporns, 2011). In Sporns' (2013) elaboration of the connectome cognition/meaning and behavior involve *classic diagnostic phenotypes* (e.g. *DSM-5* diagnostic criteria); whereas, underlying neurobiological systemic patterns/functional systems and their underlying neurons/cells and molecules involve *intermediate phenotypes* or substrates:

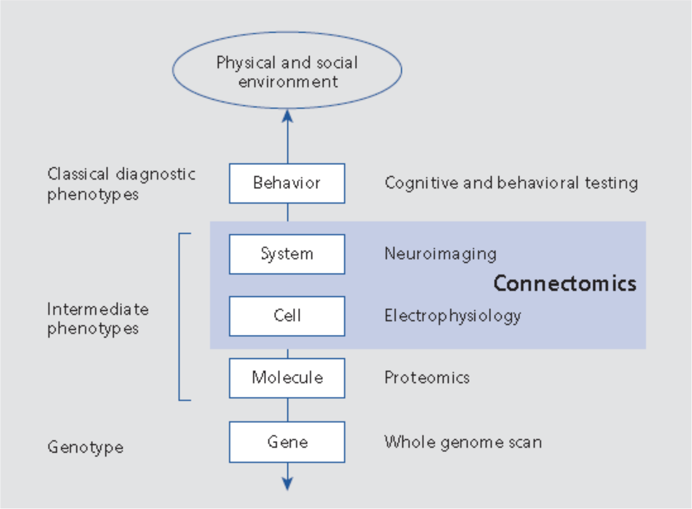


Figure 2.5. Connectomics. Adapted from Sporns, O. (2013). Structure and function of complex brain networks. *Dialogues in Clinical Neuroscience*, *15*(3), 247, p. 258.

Discussing Kris' extreme negativity (neuroticism) as it has developed over the years, it appears that Kris' negativity serves her well in one extremely important function of the mind: to enhance prediction accuracy and thereby prevent surprises that could drive the homeostatic milieu of the body and mind outside healthy/survival set points (Friston, 2010).

Early on in treatment, I administered Young's Schema Questionaire (1998) to Kris, an instrument with demonstrated psychometric properties (Oei & Baranoff, 2007). Tellingly, Kris endorsed schemas or core beliefs reflected in the following representative statements she said describe herself perfectly: "For the most part, I have not had someone who really listens to me, understands me, or is tuned into my needs and feelings"; "I always feel on the outside of groups"; "I can't seem to escape the feeling that something bad is about ot happen"; "I can't seem to discipline myself to complete routine or boring tasks."

Each of these debilitating patterns of belief involve early maladaptive schemas (EMS) which Kris constructed as a child to account for the phenomenology of her life and thereby reduce prediction errors (Friston, 2010; Riso & McBride, 2007; Young et al., 2003). Bowlby (1980) described human attachment as a homeostatic system functioning to maintain affectional bonds. Kris' schemas first developed as she attempted to adopt strategies to maintain affectional bonds with her parents who, as previously described, were engaged in a pattern of shocking Interpersonal Partner Violence (IPV)/Domestic Violence (DV) which Kris erroneously labelled as "pretty normal" for a child. What was adaptive for her as a child ensuring her survival, became maladaptive for her as an adult because as Kris came to understand in therapy, she married a bully who mirrored her biological father in many ways (see discussion below regarding Freud's concept of the compulsion to repeat traumas).

Simard, Moss, and Pascuzzo (2011) recently published the results of a 15-year longitudinal study where they found that "unmet childhood needs for secure attachment" lead to the same early maladaptive schemas Kris endorsed on her Young's Schema Questionnaire quoted above. A pivotal focus of our work in therapy involved helping Kris experientially access these core beliefs about herself and others and allow them to be transformed into more adaptive ones based upon her present reality as an adult. We used breathing exercises to calm and resource her before accessing early trauma in treatment. Paulsen (2014) described a helpful method I recently found useful in working with Kris. The technique helps contain/fractionate activation when working with early trauma and neglect. Using Paulsen's model, I helped Kris access discrete early ego states and process them in small packets which kept her in the window of tolerance I describe below in section IV of this paper.

From fixation & fate to neuroplasticity & hope. Ramon y Cajal wrote that, by the time humans reach adulthood, "the nerve paths are something fixed …. Everything may die, nothing may be regenerated" (Cajal, 1913/1959, p. 750). His "harsh decree" on adult neuroplasticity enjoyed majority view status among neurologists and psychologists alike throughout the 20th Century; physicians gave little hope to stroke survivors or any adult with nervous system problems—which would include all mental health patients today (Schwartz & Begley, 2002).

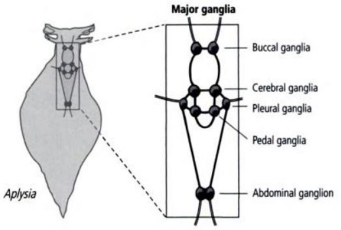
The year 2000 marked a change for the doctrine of plasticity. In that year Eric Kandel won the Nobel Prize in Physiology and Medicine for his work on the cellular basis of learning (i.e. adult neuroplasticity). His research findings marked a Kuhnian

(1970) paradigm shift among neurologists which has worked its way from scientists to clinicians, including myself in conceptualizing Kris' case of Complex PTSD.

Because the sea slug Aplysia's unusually simple nervous system made it an excellent choice, Kandel (2007) used it for his experiments, respectfully describing the animal as "a large, proud, attractive, and obviously highly intelligent beast …" (p. 146).

9-2 ***Aplysia californica*: the giant marine snail.** (Courtesy of Thomas Teyke.)

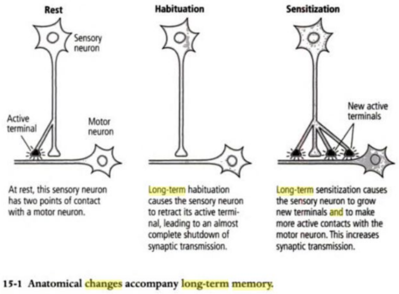
SEARCHING FOR AN IDEAL SYSTEM TO STUDY MEMORY 147



9-3 The brain of *Aplysia* is very simple. It has 20,000 neurons grouped into nine separate clusters, or ganglia. Since each ganglion has a small number of cells, researchers can isolate simple behaviors that are controlled by it. They can then study changes in particular cells as a behavior is altered by learning.

Figure 2.6. Kandel's Aplysia. Adapted from Kandel, E. R. (2007). *In search of memory: The emergence of a new science of mind.* New York: W. W. Norton & Company, Inc., pp. 146-147

Kandel's (2007) research demonstrated that short and long-term memory differed not just in the strength (or efficiency) of synaptic connections where post synaptic receptors became more sensitive and abundant with repeated firing—a research finding previously demonstrated by Hebb (1949) and Stent (1973)—where plasticity was defined by "synchronous impulse activity of pre- and postsynaptic nerve cells." Kandel also demonstrated that long-term memory included *synaptogenesis*, where upstream neurons develop new terminal buttons to connect with downstream neuron receptors. These new synaptic connections constituted the cellular basis of long-term memory:



At rest, this sensory neuron has two points of contact with a motor neuron.

Long-term habituation causes the sensory neuron to retract its active terminal, leading to an almost complete shutdown of synaptic transmission.

Long-term sensitization causes the sensory neuron to grow new terminals and to make more active contacts with the motor neuron. This increases synaptic transmission.

15-1 Anatomical changes accompany long-term memory.

Figure 2.7. The cellular basis of memory. Adapted from Kandel, E. R. (2007). *In search of memory: The emergence of a new science of mind.* New York: W. W. Norton & Company, Inc., p. 214.

Kandel (2007) described his findings as follows:

> Short-term memory produces a change in the function of the synapse, strengthening or weakening preexisting connections; long-term memory requires anatomical changes. Repeated sensitization training (practice) causes neurons to grow new terminals, giving rise to long-term memory, whereas habituation causes neurons to retract existing terminals. Thus, by producing profound structural changes, learning can make inactive synapses active or active synapses inactive (Ibid).

Repetition of stimuli implicates an interplay of “[g]enetic and developmental processes” which “specify the connections among neurons” and, in so doing, describes a biological basis of individuality (Kandel, 2007, p. 202). This, then, is a neurobiological view of character and the impact of childhood experiences upon one’s character. The anal retentive and explosive personality structures identified by Freud and others still exist; however, it is far more possible for this character to change under the new paradigm which admits ongoing adult Kandelian neuroplasticity.

Penfield and brain mapping (circa 1930-1980). Working with severe epileptics who required the “excision of epileptogenic scar tissue” (Eccles & Feindel, 1978, p. 479), Wilder Penfield and others learned much about the brain by carefully mapping it to facilitate epileptic surgeries. Their work laid a scientific foundation which eventually led to a finding that the brain itself is capable of neuroplastic change throughout one's lifespan. Before surgically removing portions of an epileptic's brain, surgeons needed to know how to avoid damaging speech and sensori-motor portions of the brain as much as possible. To accomplish this, Penfield stimulated portions of his patients' brains and asked them where they felt it (Penfield & Boldrey, 1937; Penfield & Roberts, 1959; Schwartz & Begley, 2002, p. 169). His and others' work led to the development of the "sensory homunculus" (Orlov, Makin, Zohary, 2010).

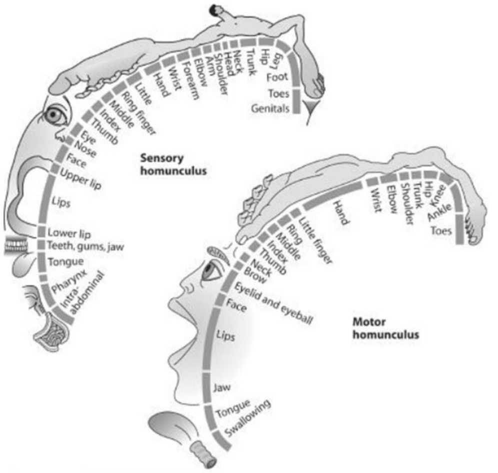


Figure 6: A. The sensory homunculus depicts the location and amount of cortical space devoted to processing tactile signals from different places on the body. Sensitive regions such as the lips and genitals command a great deal of cortical space. **B.** The motor homunculus shows the amount of cortical space devoted to controlling the movement of different regions of the body. Muscles involved in speech and hand movements receive a great deal of cortex, while less dextrous regions such as the shoulder receive very little.

Figure 2.8. The Sensory Homunculus. Adapted from Schwartz, J. M., & Begley, S. (2002). *The mind and the brain: Neuroplasticity and the power of mental force.* New York: HarperCollins Publishers, Inc., p. 170.

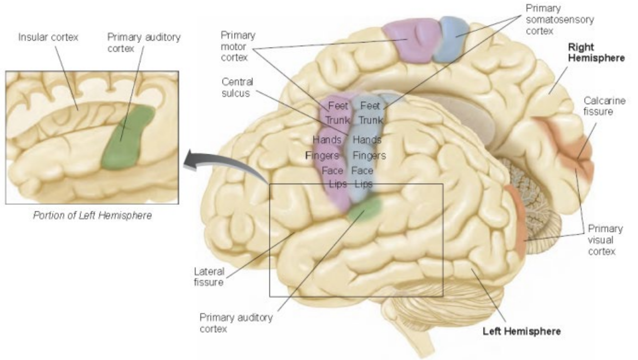


FIGURE 3.12 **The Primary Sensory Regions of the Brain**
The figure shows a lateral view of the left side of a human brain and part of the inner surface of the right side. The inset shows a cutaway of part of the frontal lobe of the left hemisphere, permitting us to see the primary auditory cortex on the dorsal surface of the temporal lobe, which forms the ventral bank of the lateral fissure.

Figure 2.9. The Primary Sensory Regions of the Brain. Adapted from Carlson, N. E. (2013). *Physiology of behavior* (11th ed.). Boston, MA: Pearson Education, Inc., p. 82

Neuroplasticity, phantom limbs, violinists & London cabbies. Researchers further discovered that injuries to the body or the brain resulted in remapping and even relocating representations of the injured appendage elsewhere in the brain when the patient regained sensation or use of the affected part (Clark, Allard, Jenkins & Merzenich, 1988; Darian-Smith & Gilbert, 1994; Garraghty, Lachica, & Kaas, 1991).

Later, neuroplasticity was further demonstrated through neuroimaging establishing that violinists' and cellists' left finger representations in their brains were "substantially enlarged" (Elbert, Pantev, Wienbruch, Rockstroh, & Taub, 2005, p. 305). So too with London taxi cab drivers whose hippocampi were substantially larger than controls (Maguire, et al., 2000, p. 4402). A neurobiologically informed perspective on psychotherapy (Gabbard, 2000) once considered *avant garde* (Kandel, 1998) now represents mainstream psychological science.

Neuroplasticity, adaptation, brain function & personality. Evolutionarily speaking, an organism's ability to change its neural circuitry and biology in response to environmental demands aids in the survival of the species. Given the fact that our own species relies upon social cooperation for survival, this source of adaptive developmental capacity can also cause dysfunction (Costello, 2013, p. 43).

An example of adaptive capacity can be found in individuals born blind, whose brains recruit the visual cortex for touch-related processes. Thus, somatosensory perception engages a form of cross-modal plasticity, enabling a person born blind to read Braille. Sighted persons cannot read Braille because their sense of touch lacks the heightened sensitivity achieved with this cross-modal neural connectivity (Cohen, et al., 1997). Similarly, Hamilton, Pascual-Leone & Schlaug (2004) found close to a 300% prevalence of absolute pitch among blind musicians over sighted subjects.

As my client gained greater emotional regulation and attentional capacity by working through her traumatic past and present with me, a new orientation to life and the future began to emerge. For the first year and half of therapy, Kris' vision for the future had involved a bleak longing to die when she could feel certain her children would be okay after she was gone. Kris had reached this bleak adaptational point in her life through a long history, beginning at age 4, of witnessing extreme abuse by her father upon her mother—savage beatings and threats of death. Children in such environments experience chronic activation of the Hypothalamic, Pituitary, Adrenal (HPA) Axis which, over time, seriously interferes with normal emotional control and attention processing (Lanius, Paulsen, & Corrigan, 2014). Fluctuating childhood depression and aggression become adaptive reactions to chronic terror. This formed my basic etiological conceptualization of Kris' emotional dysregulation, attentional deficiencies, and extreme negative biases (Sapolsky, 2004; Siegel, 2010, 2012; Sobel, 2012, p. 78).

Sapolsky (2004) wrote about "atypical depression" characterized by psychomotor retardation and a roiling internal milieu of mental activity, as well as chronic extreme physical and mental exhaustion, sleeplessness, and fatigue (p. 294). This form of depression characterized Kris' condition. In one conversation about a single day in her life, she spoke about one worry or frustration or infuriating matter after another with which she had battled that day. By the end of our discussion, I felt mentally exhausted and told her so. I also said, "No wonder you're exhausted all the time. You're busy. The only problem is that you're busy in your mind without engaging the body." She concurred with the accuracy of this interpretation.

Over time Kris' orientation toward life in general and the future began to change. She exhibited more metacognitive awareness, more emotional regulation, and increased attentional capacity. The increases in emotional regulation and attentional engagement in turn facilitated an improvement in her relationships—especially with her oldest son (with whom she had been estranged for several years prior to beginning treatment) and an old friend.

On the biological level, these changes in my client reflect neuroplasticity, improved connectivity and synchrony of different parts of the brain (Dore et al., 2015, Frangou, 2014) and even neurogenesis itself in the hippocampus (Nakazato, 2009; Martinowich et al., 2003; O'Donnell & Shelton, 2006, p. 457).

New patterns of reciprocal interpersonal behavior involve bottom up and top down changes in neurocircuitry and neuromodulatory processes upon which the mind functions and conscious awareness emerges (Libet, 2003). At its most fundamental level, Kris' treatment entailed an artistic "neural sculpting of the self" (Costello, 2013, pp. 43-68).

Throughout her childhood, my client's mother inconsistently fawned upon and then passively neglected and, indirectly, rejected her. At other times, the two of them became enmeshed in role reversals when Kris found herself protecting her mother from her father. Terror and confusion constantly occupied her emotional and cognitive neurocircuitry as a child. She adapted by shutting down her memory of these times in her life—a form of dissociation associated with the release of endogenous opioids in the stress response (Lanius et al., 2014). She also developed a polarized perceptual bias which helped her maintain emotional homeostasis. The neurobiology associated with these strategies worked to form Kris' adult personality (DeYoung, et al., 2010; Perry et al., 1995).

Adult neural plasticity is now well established not only for all the senses (Doidge, 2007), but also for thinking, perceiving, and feeling where the volitional mind is able to change the neurobiological structure and function of one's nervous system (Damasio, 2000; Damasio et al., 2000; Doidge, 2007, 2015; LeDoux, 2002; Schwartz & Begley, 2002).

Physiological & somatic sources of self. Researchers identify the Cortico-Striato-Thalamo-Cortical (CTSC) circuits with one's neurophysiological sense of self (Ahmari & Dougherty, 2015; Amen, 1999; Brendel, Stern & Silbersweig, 2005, p. 1201; Lewis & Todd, 2007, p. 415; Schwartz & Begley, 2002, p. 63; van der Kolk, 2014, p. 91). In "synthesizing" the studies on Obsessive Compulsive Disorder (OCD) pathophysiology, Ahmari and Dougherty wrote the Orbital Frontal Cortex (OFC), Anterior Cingulate Cortex (ACC), Caudate and Anterior Thalamus all participate in different "OCD [Obsessive Compulsive Disorder] subtypes", e.g., checking behavior versus hand washing (p. 4). Van der Kolk (2014) called this circuit the "Mohawk of Consciousness," and Schwartz and Begley (2002) associated it with an error signal embedded within an infant's core attachment system neurocircuitry.

Genes and the environment interact to produce phenotypic adaptation to one's social environment. This adaptation includes neuroendocrinologically mediated adaptations of an infant or developing child's perceptual system, which affects neuro-interconnective circuitry (Kellerman, 2013; Ladd et al., 2000; Meaney, & Ferguson-Smith, 2010; Roberts, 2013; Siegel, 2012; Weaver et al., 2004). This is true throughout the human lifespan, but especially so during early sensitive periods (Johnson, 2005). Adverse childhood experiences during these sensitive periods result in particularly salient "biologically embedded" functional changes in the developing child's nervous system (Shonkoff, Boyce, & McEwen, 2009; See also Schore, 1996).

Schwartz and Begley (2002) identified the biologically embedded outcome of the diathesis-stress model outlined in the preceding paragraph concerning Obsessive Compulsive Disorder (OCD) with an error signal generated by Tonically Active Neurons

(TANS) in the Caudate—established early in life in response to “unmet childhood needs for secure attachment” (Simard et al., 2011).

Thorpe, Rolls, and Maddison (1983) first demonstrated how the brain’s anticipatory reward processes give rise to particularly persistent error signals. When this signal involves the attachment system (Bowlby, 1969/1982), Schwartz & Begley (2002) hypothesized that the Orbital Frontal Cortex (OFC) and the Anterior Cingulate Gyrus (ACG) send persisting error signals to the viscera (p. 65). This signal then becomes a chronic biologically based connectome or substrate of shame (Corrigan, 2014).

The following diagram illustrates the neural circuitry involved in this process:

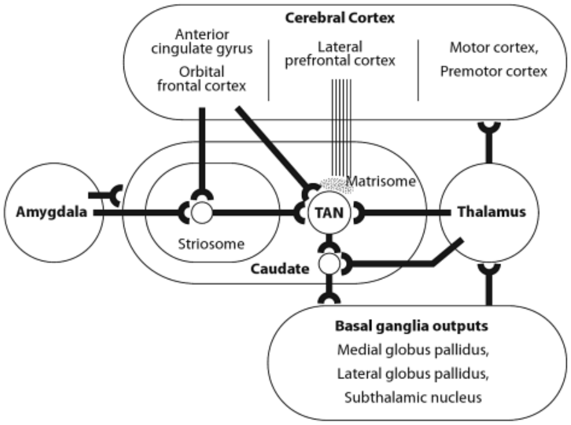


Figure 2: Cells in the caudate known as tonically active neurons (TANs) tend to be found between striosomes and matrisomes. Striosomes are areas where information from an emotion-processing part of the brain, the amygdala, reaches the caudate; matrisomes are clumps of axon terminals where information from the thinking, reasoning cerebral cortex reaches the caudate. By virtue of their position, TANs can integrate emotion and thought. They fire in a characteristic pattern when the brain senses something with positive or negative emotional meaning. Cognitive-behavioral therapy may change how TANs respond to OCD triggers.

Figure 2.10. The Error Message and the Neurophysiological Foundations of One’s Sense of Self. Adapted from Schwartz, J. M., & Begley, S. (2002). *The mind and the brain: Neuroplasticity and the power of mental force.* New York: HarperCollins Publishers, Inc., p. 69

Tonically Active Neurons (TANS) send out attachment error signals to the Anterior Cingulate Gyrus and the Orbital Frontal Cortex initiating early behavior aimed at gaining caregiver attention and comfort. Should this error signal and its related behavioral correlates fail, the child develops a core feeling of rejection and shame. Conversely, when the developing infant perceives she is loved, seen, and provided for by her early caregivers these same Tonically Active Neurons (TANs) send out visceral signals of wellbeing.

In normal development, these beacon signals of wellbeing to the viscera communicate a neurophysiological somatic foundation for the true self (Winnicott, 1960). Other infants and children, such as Kris, growing up with a persistent alarm of relational distress, usually interpret the feelings to mean they themselves are defective. That is, a deep sense of neurobiologically mediated shame potentiates such persons' approach and avoidance evaluation neurocircuitry (Corrigan, 2014, Dore et al., 2015).

Panksepp (1998) wrote that mammals and rodents share homologous brain stem and limbic systems neurocircuitry. He further observed that a small tuft of cat hair in rat environments immediately terminates the fun and learning associated with play among pups (p. 18). The same probably applies for human children such as Kris who grow up with "a bully" as she described her biological father in a recent therapy session. The fear and uncertainty created by their parents in childhood deprives them of all the benefits of spontaneous learning associated with childplay.

Regarding transference associated with Kris and me as a father figure in the therapeutic relationship, Winnicott (1971/2005) wrote:

> Psychotherapy has to do with two people playing together. The corollary of this is that where playing is not possible then the work done by the therapist is directed towards bringing the patient from a state of not being able to *play* into a state of being able to *play* (p. 51).

Kris' current state of mind regarding attachment involved a blend of unresolved loss and trauma and insecurity called "cannot classify." Hesse (1996) wrote this category of attachment applies "when no single attentional strategy is present [during an adult attachment interview] and/or there appears to be a collapse in discourse strategy at a global (versus local) level…" (p. 5). The chaos of Kris' early childhood experiences with her caregivers precluded predictable interactions and, therefore, precluded an organized strategy for connecting with others, resulting in a "cannot classify" adult state of mind regarding attachment.

At the level of neurological development, this condition possibly involved Tonically Activated Neuron (TAN) signals from Kris' Caudate/Striatum and Orbital Frontal Cortex (OFC) emitting chronic error signals to her gut. Unfortunately, unlike a secure child who would adaptively respond to this signal by seeking the comfort and security of her caretakers, Kris had no such option. Over time she concluded that something was wrong with her core self. This process is common among children who do not receive the benefit of secure caregivers in childhood (Behrens, Hesse, & Main, 2007; Brendel et al., 2005, pp. 1202-1203; Diamond, 2004; Main, Kaplan, & Cassidy, 1985).

Bandelow, Schmahl, Falkai and Wedekind (2010) recently advanced a theory of Borderline Personality Disorder Borderline Personality Disorder (BPD) which ties this error signal from the Caudate/Striatum to "alterations in the sensitivity of opioid receptors or the availability of endogenous opioids" leading to impulsive behaviors. Other researchers have advanced similar explanations for dissociative symptoms associated with early childhood trauma (Lanius et al., 2014).

Traumatized people often cut off awareness of their body and of their emotions, thereby losing two-thirds of sensory and emotional input comprising the sense of self (Ogden et al., 2006). Treatment involved helping Kris become aware of and befriend her own body. We used body scans, to help her become more aware of the feeling of her body; and imagination—for example, having Kris visualize energy flowing through her body with her breath—with the goal of integrating dissociated parts of Kris' body, emotions, and mind to promote a fuller more resilient sense of self.

Modern Warfare, Railway Accidents & Stress Disorders: The American Civil War & Railway Accidents (*circa* 1860-1914).

The American Civil War epitomized human ingenuity, using science to kill enemies more efficiently. The new weapons of war (particularly the rifle with its improved range and accuracy over muskets) outpaced military tactics, and war became murder (McWhiney & Jamieson, 1984). The psychological impact upon men who witnessed Civil War battlefield carnage occasioned a new diagnosis: "irritable heart" (Da Costa, 1871). The condition consisted of symptoms akin to modern day PTSD, including such stress reactions as debilitating heart palpitations, inflammation, pain, dyspnea, trembling, headaches, and fatigue (Chamberlin, 2012; Da Costa, 1871; Wood, 1941).

On the civilian side of life at that time, railroad accidents at modern speeds and injuries associated with heavy machinery gave rise to another new diagnosis: "railway spine." Erichsen (1867), who coined the term, conceptualized these injuries as insults to the nervous system. In his Text-book of Nervous Diseases for Physicians and Students, Oppenheim (1911) described railway spine as "diseases of the spinal cord without organic or hitherto recognized anatomical cause … [and in particular] "a railway accident…" (pp. 395-396).

The notion that psychological shock and pain could exist without physical trauma to the spine or brain barely registered with physicians and neurologists at the time. Oppenheim (1911) concluded that cases of internal injury to the spine without external injury are “exceedingly rare, and the affections of the nervous system occurring after such accidents should for the most part be regarded as neuroses” (Ibid, p. 396). Neuroses generally meant malingering for purposes of compensation (Trimble, 1984).

Disability and compensation claims perennially involve the politics associated with the distribution of limited public funds. The issues surrounding compensation and disability regarding irritable heart and railway spine were major concerns in their day, and the literature of that time focused much upon how to detect true from false claims (Trimble, 1984). In a review, Barsky and Borus (1999) labeled irritable heart and railway spine psychosomatic manifestations born of conscious or unconscious desires for compensation. They also claimed that modern day conditions associated with multiple chemical sensitivity, sick building syndrome, repetition stress injury, silicone breast implant sickness, Gulf War syndrome, chronic whiplash, chronic fatigue syndrome, irritable bowel syndrome, and fibromyalgia belonged in the same category (p. 910):

> Although discrete pathophysiologic causes may ultimately be found in some patients with functional somatic syndromes, the suffering of these patients is exacerbated by a self-perpetuating, self-validating cycle in which common, endemic, somatic symptoms are incorrectly attributed to serious abnormality, reinforcing the patient’s belief that he or she has a serious disease (Ibid).

The difficulty these cases present ultimately involved the psychodynamics of somatization. The underlying neurophysiological mechanisms of the development of stress related pain and disease hardly began to be understood until Cannon (1939) and Selye (1936, 1946). Moreover, the idea that a physical complaint could stem from a non-physical stressor clashed with deeply held worldviews at the time: only unmanly cowards and malingerers broke down psychologically without physical injury. Society at that time would not compensate or award disability to the “undeserving” as a matter of principle (Chamberlin, 2012; Trimble, 1984).

Charcot, Freud, & Janet (*circa* 1880-1914). Charcot, Freud, and Janet’s work with hysterical women at the end of the 19th Century and, later, Freud’s work with shell shocked men in World War I introduced new paradigms for conceptualizing and treating traumatic stress. Charcot used hypnosis to prove hysteria involved malfunctions of the mind rather than the body. Janet (1907/1920) said of Charcot that he “used to say that hysteria is an entirely psychic malady” (p. 320). And Charcot was the first to emphasize “the importance of ideas” in treating hysteria (Ibid). Freud and Breuer (1895/1937) credited Charcot with the idea that peritraumatic dissociation strongly predicts PTSD (p. 28).

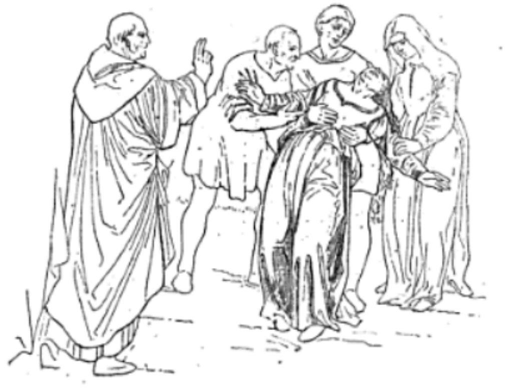
Janet (1901, 1907/1921) wrote about “fixed ideas” and “vehement emotions” that preclude the normal integration of memory and learning (Edwards & Jacobs, 2003, p. 27; Herman, 1997, p. 12; van der Kolk, 2000, p. 238). This loss of normal integration results in a loss of mastery or adaptive capacity in life (van der Kolk & van der Hart, 1989).

Freud (1920/1961) conceptualized trauma as “excitations from outside which are powerful enough to break through the protective shield [and cause] a breach in an otherwise efficacious barrier against stimuli.” Trauma so defined: “[**1**] provoke[s] a disturbance on a large scale in the functioning of the organism's energy” (biological stress responses); “[**2**] set[s] in motion every possible defensive measure” (psychological processes); and, “[**3**] put[s] out of action … the pleasure principle” (social and relational processes) (Freud, 1920/1961, pp. 23-24).

In general, Charcot, Janet and Freud alike viewed *traumatically based neuroses* as a symptomatic constellation born of memory pathogens ensconced within the patient’s psychic structure. Their concepts established a scientific approach to trauma which moved mental health care beyond the Middle Ages where God, the devil and demons were viewed as active agents in human illness and disease – especially mental disorders/disease (Aldwin, 2007; Jones & Wessely, 2007; Kuhn, 1970; Virchow, 1860).

Charcot (b. 1825, d. 1893): Neurologist, educator and politician/lobbyist. In 1862 Charcot became the head physician at Salpetriere in Paris, France—an insane asylum described as "a kind of feminine inferno [a la Dante], … confining four thousand incurable or mad women" (Didi-Huberman, 2003, p. xi).

Neurologist. As a neurologist, Charcot advanced the study of localized brain processes by carefully documenting neurological symptoms which he compared with autopsy results when his insane asylum patients died (Charcot, 1878). In so studying hysteria and epilepsy he developed symptom lists that enabled differential diagnoses (Charcot, 1879). He also worked to overcome religious etiologies of disease, still very influential in his day, by demonstrating a confusion of hysteria with demonology in the history of Christian art (Charcot, Marie, & Richer, 1887).



SAINT PHILIPPE DE NÉRI DÉLIVRANT UNE POSSÉDÉE

Groupe dans une fresque de André del Sarte, dans le cloître de l'Annunziata, à Florence.

Figure 2.11. Engraving of Hysterical Woman Being Exorcised in the Middle Ages. Adapted from Charcot, J. M., Marie, P., & Richer, L. P. (1887). *Les demoniaques dans l'art.* Paris: Adrien Delahaye et Emile Lecrosnier., p. 26.

Educator. Charcot advocated education, holding weekly lectures with demonstrations using actual patients for the Parisian upper class, medical students, and policymakers until his death in 1893 (Herman, 1997). Psychologists do well today to follow Charcot's emphasis on educating the public and health care professionals, in general, with psychological principles (Kaslow, 2015).

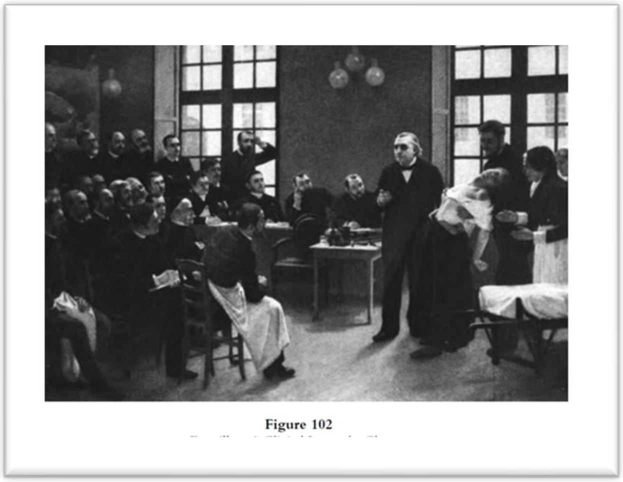


Figure 2.12. Charcot Giving One of His Famous Lectures to the Educated Class in Paris. Adapted from Didi-Huberman, G. (2003). *Invention of hysteria: Charcot and the photographic iconography of the Salpêtrière* (A. Hartz, Trans.). Cambridge, MA: MIT Press, p. 283.

Politician & lobbyist for mental health. According to Freud (1893/1962a), Gambetta co-founder of the Third Republic in France (*circa* 1870 – 1940) and later, as Prime Minister, supported Charcot's work at Salpetriere until Gambetta died in 1882 (Hutton, Bourque, & Staples, 1986, p. 411). Charcot advocated the use of hypnotism (Bernheim, 1880) to demonstrate hysteria as a disease of the mind and he challenged the idea that demons or witchcraft had any causative effect in the development or maintenance of mental disorders whatsoever (Ellenberger, 1970, pp. 83-85).

Herman (1997) wrote about how the politics behind the growth and expansion of

Salpetriere during Charcot's tenure shifted toward the end of Charcot's life. The 44th French Prime Minister, Ferry, and the 45th, Gambetta, epitomized the political ideology of Third Republic (*circa* 1870-1940). This ideology held that secular science promised greater security for the French people because, as they saw it, religious meddling of the Catholic Church had been destabilizing French society and politics for hundreds of years.

In this regard, treating hysteria at Salpetriere took on symbolic proportions (Horvitz, 2000, p. 12). Politicians in the Third Republic considered the work at Salpetriere to fit in with a larger goal of gaining the allegiance of the people from the church. "Women must belong to science or they will belong to the Church" (Herman, 1997, p. 15 quoting Jules Ferry of the Third Republic).

By the turn of the 19th Century, France had largely transitioned to a secular government informed by secular pluralistic principles (as opposed to religiously informed notions of divine right to rule). Their success in this regard led to less concern about gaining women for science and women's rights lost its status as a political platform (Herman, 1997).

After Charcot's death in 1893 his predecessor at Salpetriere criticized both Charcot's use of hypnosis and his public lectures (Ellenberger, 1970, p. 101). A scandal developed over allegations that Charcot used hypnotism to generate the hysterical symptoms his women displayed for Parisian show, rewarding women who acted hysterical with better spots in the institution (Didi-Huberman, 2003, p. 170). Allegedly, years after Charcot's death, his old patients "would, for a small remuneration, act out … the full-fledged attack of the *grande hysterie*" (Guillain, 1959, p. 174). Such hearsay should be weighed against Charcot's own comments on the phenomenon:

It is found in every phase of hysteria and one is surprised at times to admire the

> ruse, the sagacity and the unyielding tenacity that especially the women, who are under the influence of a severe neurosis, display in order to deceive … especially when the victim of the deceit happens to be a physician … (Charcot, 1889, cited by Trimble, 1984. p. 44).

Both Freud and Janet studied under Charcot and openly acknowledged his influence upon their thinking and careers. This joining of Freud and Janet under Charcot at Salpetriere may have been Charcot's greatest contribution to the field of traumatology (Freud, 1893/1962a; Janet, 1907/1920, pp. 20-21; Trimble, 1984).

Freud (b. 1856, d. 1939): Freud before psychoanalysis, gender issues, repetition compulsion, free association, resistance & transference. Freud discovered "a *psychodynamic* concept of unconscious mental processes" to explain human drives and motivation (Macmillan, 2009, p. 231). Although Freud adopted a literary language to describe psychic processes, in his *Project for Scientific Psychology* (1895/1950) he attempted to articulate a neurobiologically based foundation of what he later called *primary* and *secondary* processes of the mind, before language existed to describe them (Shore, 1997). For example, Freud invented the terms "contact barriers" (pp. 288, 292) and "secretory neurons" two years before Foster and Sherrington (1897) coined the term *synapse* (p. 929). Freud's (1895/1950) "secretory neurons" (p. 320) predated scientific knowledge of neurotransmitter circuits of the brain by decades (Schore, p. 809).

Freud before psychoanalysis. In the early 1880s Freud and Breuer conceptualized the somatic symptoms of hysteria as a "disguised representation of intensely distressing events which had been banished from memory" (Herman, 1997). Freud and Breuer's (1895/1937) emphasis on affect remain an important variable in modern treatment of trauma:

> “We found, at first to our greatest surprise, that the individual hysterical symptoms immediately disappeared without returning if we succeeded in thoroughly awakening the memories of the causal process with its accompanying affect, and if the patient circumstantially discussed the process in the most detailed manner and gave verbal expression to the affect. **Recollections without affects are almost utterly useless**. The psychic process, which originally elapsed, must be reproduced as vividly as possible so as to bring it back into the *statum nascendi* [i.e. the state of being born], and then thoroughly "talked out." If it concerns such irritating manifestations as convulsions, neuralgias, and hallucinations, they are once more brought to the surface with their full intensity, and they then vanish forever…. **The hysteric suffers mostly from reminiscences**” (pp. 3-4, emphasis added).

Influenced by Breuer, in his early work and writings Freud viewed psychogenic memory as a foreign body which could be diffused or removed by the work of association, where memory traces were followed back to original trauma. Once the pathogenic memory was uncovered, its meaning, which had been neurobiologically encoded, could be released. Breuer’s work with Anna O exemplified this process, when she was able to connect with the physical and emotional exhaustion she suffered at the time of her originating traumatic memory. When she became aware of her repressed feelings and self-reproach associated with caring for her dying father, the pathogenic nature of the traumatic memory dissolved. The foregoing path to awareness and articulation effectuated Freud and Breuer’s (1895/1937) “talking cure” (p. 27).

Freud and Breuer’s account of Miss Anna O. sounds similar to much of my own work with Kris. We spent many sessions working through her memories, when, about a year and a half into treatment, we reached one which she had never shared with anyone, having to do with her first pregnancy and her first child. Although Freud and Breuer (1895/1937) seem to have exaggerated when they said that the process caused the traumatic memory to "vanish forever*,"* I observed a decided shift in Kris' emotional regulation and attentional processes when she cleared this presumably pathogenic memory.

Gender issues. Early on his practice Freud noticed a strong correlation between *hysteria* and Childhood Sexual Abuse (CSA) (Freud, 1896/1962, p. 417; Herman, 1997, p. 12). By 1896, Freud said in an important lecture that the "*caput Nili* [source of the Nile and hence the etiological fountainhead] in [the] neuropathology" of *Hysteria* traced to "one or more occurrences of premature sexual experience, occurrences which belong to the ealiest years of childhood" (Freud, 1896/1962, p. 417).

Not long thereafter, however, Freud privately repudiated this position. His correspondence of the time indicated an increasing incredulity over the prevalence and implications of his etiological hypothesis. If his theory were correct, it followed that "'perverted acts against children' were endemic" (Herman, 1997, pp. 13-14). For whatever reason, Freud was not prepared to make that assertion.

Herman (1997) wrote that, because he couldn't believe CSA was as prevelant as his patients indicated, "Freud stopped listening to his female patients…" (Ibid, p. 14). He struggled with this problem and eventually wrote to a friend:

> I was at last obliged to recognize that these scenes of seduction had never taken place, and that they were only fantasies which my patients had made up'" (Freud, 1925/1961c, p. 34; Herman, 1997, p. 14; Jones, 1953, 265, 321-322; Ley, 2000, p. 4; Masson, 1985, pp. 185-186, 2013/1984, p. 337; Summit, 1983, p. 189).

Freud rejected the prevalence of Childhood Sexual Abuse (CSA) suggested by his patients' self-reported histories; however, by incorporating conflicts over the child's fantasies into his etiological conceptualizations of psychopathology, he opted for a much more complex etiology and treatment than the one he and Breuer had articulated in 1895. Freud's rejection of the seduction theory and his disuse of hypnosis led to the birth of psychoanalysis and some of its more difficult theories of developmental psychopathology, such as castration anxiety and the Oedipus complex (Freud, 1900/1953, 1905/1953a, 1923/1961a, 1923a/1961b).

In the early years, Breuer and Freud had used hypnosis to meticulously trace back through the patient's memory to a core trauma conceptualized as a "foreign body, which continues to operate as a stimulating cause of illness until it is got rid of. *Cessante cause cessat effectus* [When the cause ceases, the effect ceases]" (Breuer & Freud, 1895/1956, p. 12; Freud, 1891/1966). However, as his theory of psychoanalysis developed, traumatic memory became a difficult issue, particularly when World War I hit and many soldiers suffered "shell shock" with its repetitive dreams of battlefield destruction—a form of repetition compulsion (Akkhar & O'Neil, 2011).

Compulsion to repeat. In *Remembering, Repeating and Working Through*, Freud (1914/1958b) wrote that, in the earliest years of psychoanalysis, treatment involved mostly "Breuer's catharsis [and abreaction] … with the help of the hypnotic state" (p. 147). Freud later abandoned hypnosis and replaced it with free association (Macmillan, 2001, p. 116). Freud's therapy, and my own work with Kris, involved a working through resistance to remembering. Freud viewed resistance behaviorally, and conceptualized resistance as that which precluded the client from allowing traumatic memory to become fully known and understood without censure (Jones, 1953, p. 273). In other words, resistance involves anything standing in the way of the client's accessing and integrating his or her trauma. In cases, such as I experienced with Kris, "the patient does not *remember* anything of what [s]he has forgotten and repressed, but acts it out. [S]he reproduces it not as a memory but as an action; [s]he *repeats* it, without, of course, knowing that [s]he is repeating it" (Freud, 1914/1958b, p. 150).

Freud related the repetition compulsion to resistance and transference in his formulation of the overarching therapeutic goal of psychoanalysis—i.e. living life according to reality. Repetition compulsion derails memory, and transference/parataxic distortion represses memory. Both processes ward off and banish memory from conscious awareness. Once accessed and integrated, a flexible developmental homeostatic adaptation to reality emerges, consistent with the patient's place in the human life span (Freud, 1911/1958, p. 218; Freud, 1920/1961). Kris and I adhered to a version of this move beyond the infantile pleasure principle into an adult, reality-based orientation to life as a primary goal of treatment.

Of Freud's theory, Ogden (2008) wrote that a child's life begins with pleasure defined by the discharge of *instinctual tension*. Life progresses, however, with a shift from the Id of pleasure as the fundamental motivational force in one's life, to the Ego of realistic adaptations to societal demands and role responsibilities in the discharge of instinctual tension. Freud's psychoanalysis facilitated this goal through enhanced awareness/insight into one's resistance to the process. Acting out behaviorally involved an unconscious transference by repetition of old behaviors into the present. Moreover, this repetition carried a homeostatic purpose that resists change (Freud, 1914/1958b—"the patient repeats instead of remembering, and repeats under the conditions of resistance", p. 130).

Conceptualizing the compulsion to repeat in the foregoing manner creates a broad category of repetitive behavioral responses which serve a homeostatic purpose of repressing unwanted memories from conscious awareness. Freud (1914/1958b) emphasized just how all-encompassing the compulsion to repeat was when he wrote: "we may now ask what it is that [s]he in fact repeats or acts out. The answer is that [s]he repeats everything …" (p. 130). These behavioral sequelae include attaching to one's perpetrator, identifying with the aggressor, self-harm, and refractory misuse of drugs and alcohol (van der Kolk, 1989). Every one of these issues came up in treating Kris, especially during the first year of treatment.

Thus, according to Freud (1914/1958b) acting out constitutes the norm with traumatized clients. Therapists do well to inform clients about this phenomena to normalize and mitigate the client's fright if triggered into ego-dystonic behaviors associated with unresolved trauma. This point bears emphasis, and all reputable trauma models recognize inherent dangers of re-traumatizing patients and rendering them iatrogenically worse.

This was certainly true with Kris. During the course of treatment, she acted out sexually with an old friend; she acted out with inappropriate angry outbursts during her divorce and custody proceedings over her son. She also acted out in her use of prescription drugs—particularly in her over-reliance upon Xanax. In this regard, our weekly session afforded her a sense of containment which helped her to work through the resistance (Bion, 1962, p. 116—containment provides relief from fear of dying and the nameless dread; Gabbard & Ogden, 2009, p. 313—the container "is not a thing, but a process of doing psychological work with our disturbing thoughts"; Grotstein, 2007, p. 155—the container changes the contained; Ogden, 2004, p. 36—the container and the contained enables one to think their most troubling thoughts).

Van der Kolk (1989) conceptualized this repetitive undesirable and unbidden phenomenon in a traumatized person's life as the product of embedded neurophysiological state-dependent, unintegrated memories/feeling states, which become activated by subsequent similar environmental/relational cues (See also Bristol, 2004; Freud, 1907/1959, 1909/1955 & 1919/1955a; Levy, 1998; and van der Kolk, Greenberg, Boyd, & Krystal, 1985 for similar views).

In the compulsion to repeat, Freud (1914/1958b) identified a key dynamic driving the maintenance of psychopathological symptoms. Indeed, the compulsion to repeat had the power to override the pleasure principle (Freud, 1920/191). Thus, as pointed out by Gedo (1995), in repeating (an automatic primary and largely reflexive process) rather than remembering (a conscious process of cortically mediated secondary process of thought), one's traumatic past becomes embedded more and more deeply in the very neurophysiology of the body. With compulsive repetitions, undifferentiated subcortical energic processes of the Id have little to no communication with the executive function of the Ego. Echoing Freud (1940), Bucci (1994) wrote that this dissociation of conscious awareness from underlying mechanisms of thought drive the compulsion to repeat.

Freud (1920/1961) described repetition compulsions as a form of traumatic memory, operating outside the normal psychoanalytic "model of compromise formations" (See also, Freud, 1919a/1956, p. 238; Gedo, 1995, p. 343). That is, with trauma survivors, the compulsion to repeat required more than the "talking cure" because homeostatic adaptive processes establish neurophysiologically embedded circuits of feeling and behavior which bypass or overwhelm executive control functions of Prefrontal Cortex (PFC) when activated.

Referring to this dynamic, van der Kolk (1989) conceptualized post traumatic neurophysiological urgencies as internal tendencies to engage behavioral sequences promising immediate homeostatic self-soothing. These behaviors which begin as efforts to adapt and work for a short period of time, take on a rigidly reflexive and automatic character which lead to maladaptive long-term disability, addiction to trauma, and substance-use disorders (van der Kolk, 1989; van der Kolk & McFarlane, 1996).

Freud’s use of the term “working through” related to the work involved in transforming old reflexive and entrenched circuitry potentiating reenactments with new circuits of neuroconnectivity that no longer bypass the Prefrontal Cortex (PFC) (Hebb, 1949; Shatz, 1990; and Stent, 1973) or overrun the contextualizing functions of the hippocampal formation under stress (Bird, Bisby & Burgess, 2012).

These changes involve habituation of old circuits and synaptogenesis associated with new awareness and thought processes that reshape neurological patterns (Kandel, 2007). Interestingly, “conclusions drawn from a child’s perspective retain their power into adulthood until verbalized and examined” (van der Kolk, 1989). Until such conclusions have been revisited and reexamined, Freud’s observation that the primary process operates without regard to time applies and childish mindsets continue to inform the adult trauma survivor’s underlying working model of the world, self and others (Freud, 1915, p. 187; see also, Toomey & Ecker, 2007 and Joseph, 1992). However, when childish conclusions are experientially accessed, verbalized and examined, new meanings emerge—particularly when these meanings derive from interventions that take advantage of Contextually Accessed Representations in the mind called C-rep imagery (discussed in detail below) (Brewin, 2001; Brewin, Dalgleish, & Joseph, 1996; Brewin, Gregory, Lipton & Burgess, 2010, p. 117; Grenell, 2008).

Indeed, the error signal associated with the Obsessive Compulsive Disorder (OCD) connectome described above initiates and maintains one of the most refractory forms of trauma-induced reenactment behavior—Obsessive Compulsive Disorder (OCD) which can be cured. Schwartz and Begley (2002) developed a four-step cognitive-behavioral approach incorporating mindfulness and Freud's reality principle. When utilized, their program changed the activity levels of the aforementioned Tonically Active Neurons (TANs) as well as the activity across the Obsessive Compulsive Disorder (OCD) connectome (Baxter et al., 1992; Schwartz, Stoessel, Baxter, Martin, & Phelps, 1996).

I used my own version of Schwartz and Begley's (2002) 4-step program with Kris, which involved helping her take the following steps when triggered by intrusive imagery (broadly defined as non-verbal feelings): 1. To become ***aware of negative interoceptive/somatic triggers*** and re-label them as mere signals of the brain and body; 2. To ***reattribute these triggers as processes of the brain and body***, rather than as proofs confirming her worthlessness and defectiveness; 3. To use these here-and-now moments, when she would otherwise be triggered into repetitive and compulsive behavior (i.e., taking Xanax and smoking) ***to engage in preplanned adaptive contingency operations*** which give her 5 to 10 minutes distance from the somatically triggered negative affect and, thereby, to refocus; and, 4. To ***view the moment with acceptance and willingness on its own terms***.

The fourth step blends Linehan's (1993, 1993a) thought about distress tolerance where, crediting May (1992), she wrote:

> Essentially, distress tolerance is the ability to perceive one's environment without putting demands on it to be different, to experience your current emotional state without attempting to change it, and observe your own thoughts and action

patterns without attempting to stop or control them…. Acceptance of reality is not equivalent to approval of reality (Linehan, 1993, p. 148; and 1993a, p. 96—note the similarity here to Freud's (1920/1961) *reality principle*).

The following figures identify relevant brain circuitry associated with Obsessive Compulsive Disorder (OCD) connectome and error signal:

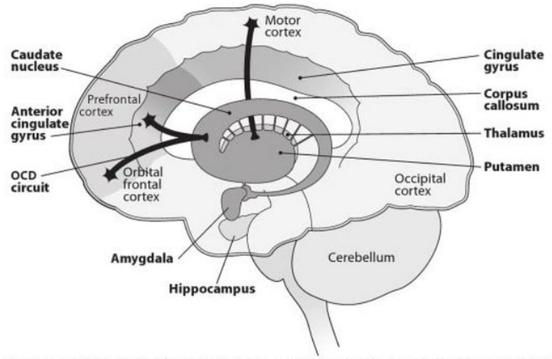
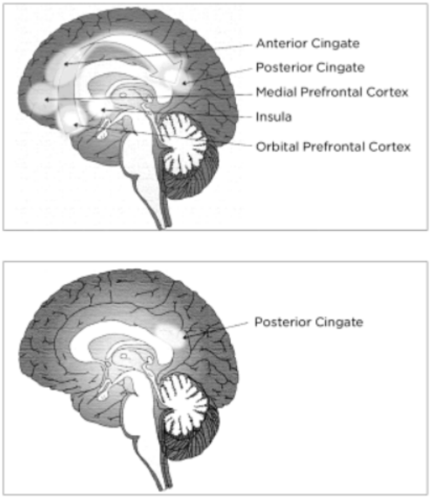


Figure 1: This side view of the brain shows some of its key structures, including those involved in OCD. In the "OCD circuit," neurons that project from the orbital frontal cortex and the anterior cingulate gyrus to the caudate nucleus are overactive, generating the persistent sense that something is amiss.

Figure 2.13. Schwartz and Begley's Obsessive Compulsive Disorder Connectome. Adapted from Schwartz, J. M., & Begley, S. (2002). *The mind and the brain: Neuroplasticity and the power of mental force.* New York: HarperCollins Publishers, Inc., p. 63



Locating the self. The Mohawk of self-awareness. Starting from the front of the brain (at right), this consists of: the orbital prefrontal cortex, the medial prefrontal cortex, the anterior cingulate, the posterior cingulate, and the insula. In individuals with histories of chronic trauma the same regions show sharply decreased activity, making it difficult to register internal states and assessing the personal relevance of incoming information.

Figure 2.14. Van der Kolk's "Mohawk of Consciousness." Adapted from van der Kolk, B. (2014). *The body keeps the score: Brain, mind and body in the healing of trauma.* New York: Viking, p.

Additionally, improvements in the neurocircuitry/functionality of the Mohawk of Consciousness also improve overall executive function and, hence, the ability to attend and focus (Frangou, 2014). The error signal associated with the Obsessive Compulsive Disorder (OCD) connectome became an important focus of therapy because Kris had extraordinarily low self-esteem, which she felt as a physiological reality.

Discussing these ideas, using the 4 steps outlined above, doing experiential ego state work with her in session, and encouraging her to actively engage her attention upon her goals during our sessions facilitated Kris' progress in terms of emotional regulation and functional improvement by approximately a year and a half into treatment.

Integrated with emotion and sensori-motor input, flexible thought renders a person open to experience and represents a foundational functional and structural shift from a survival brain to a learning brain (Ford, 2009, pp. 31-32). A learning brain welcomes rather than fears subcortical processes of the limbic system. These subcortical processes provide insight and confidence in decision-making, as an alternative to the fearful, emotionally dysregulated impulses which the client repeatedly tries, without success, to repress by maladaptive repetition compulsions (Damasio, Everitt, & Bishop, 1996).

Freud's (1920/1961) pleasure principle articulated a homeostatic neurological process where "the mental apparatus endeavors to keep the quantity of excitation present in it as low as possible at least to keep it constant" (pp. 3-4). He called the pleasure principle the primary process of the human mental apparatus. However, he understood that pure uninhibited pursuit of pleasure "is from the outset inefficient and even highly dangerous" and, therefore, "the ego's instincts of self-preservation" replace (however incompletely) the pleasure principle with the secondary process of the human mental apparatus, which he called the reality principle (p. 4).

Later, claiming that Freud's primary process grew from a pre-Darwinian metaphysical foundation, Fairbairn (1944/1952) and the object relationists, including Bowlby (1973, 1988), replaced the pleasure seeking principle of the energic Id with an object seeking one (Fairbairn, 1944/1952, pp. 33, 138; Rayner, 1991).

The error signal stemming from the Obsessive Compulsive Disorder (OCD) connectome/neurocircuitry discussed above manifests itself in this context as a quantum of unbound energy, which perturbs consciousness and leads to chronic unrest of mind and interferes with pleasure. In formulating Kris' case, I drew upon Freud's concepts of the reality principle as it related to the problem of repetition compulsions. Fundamental existential and felt realities of anxiety and depression abounded for Kris, due to the underlying dysregulation of the primary and secondary mental apparatuses occasioned by her traumatic childhood, which had initiated the original error signal into the mix of her mental life.

Additionally, cumulative traumas in adulthood had broken through the protective barrier to such a degree that normal defenses had no power over the repetition compulsion, and did little to restore pleasure. In *The Uncanny*, Freud (1919/1955a) wrote that trauma related compulsions can and do "overrule the pleasure principle" giving the traumatized mind a "daemonic [sic] character" (p. 238).

In treating Kris, I believed that psychoeducation and in-session experiential work with memories, ideas, and her somatic awareness of her own body would clear traumatic interference with her primary processes, including the pleasure principle. This clearing would come as a byproduct of resetting her stress response system to a lower level of baseline activity and improved capacity to focus and attend.

From this perspective, Kris' anxiety involved traumatically induced dysregulations of both her primary (unconscious) and secondary (conscious) mental apparatuses. These dysregulations affect deep structures of the brain involved in what Epstein (2014) called the experiential system, which Winnicott (1960) called the false self and Bowlby (1980) called the attachment system. (See also Gladwell's 2007, popularization of this research in *Blink: The Power of Thinking Without Thinking* and Goleman's, 2013, *Focus: The Hidden Driver of Excellence* who also considered the neural structures identified above as the Obsessive Compulsive Disorder (OCD) neurocircuitry as central to one’s ability to focus).

Conceptually speaking, my therapeutic work with Kris involved interventions aimed at moving Kris towards establishing a neurophysiological foundation and structure associated with secure attachment. One might call it a move toward metacognitive awareness and mental flexibility from a prior place of disorganization, mental rigidity and insecurity (Ogle, Rubin, Siegler, 2015; Siegel, 2010).

Free association. Breuer and Freud (1893/1956) started out using hypnosis in their therapeutic work; however, Freud became increasingly skeptical about the ongoing usefulness of hypnosis in psychotherapy. Regarding one of his early patients, Fraulein Elisabeth von R., wrote that when he hypnotically suggested she was asleep to her, she “triumphantly” told him that he was wrong and that she was not hypnotizable. He wrote further that this scenario was common in his practice (Freud & Breuer, 1895/1937).

Thus, on account of its unreliability in treatment, and to avoid false allegations that psychoanalytic benefits were produced by suggestion, Freud abandoned hypnosis entirely in favor of free association (Freud, 1914/1958b; Macmillan, 2001, p. 114). Freud’s method for using free association involved an agreement between the analyst and analysand at the beginning of treatment to the fundamental rule, i.e. that “whatever comes into one's head must be reported without criticizing it …” (Freud, 1912/1958a, p. 107). Reaching this point in any modality results in therapeutic progress and implicates a deeply engrained social connectivity associated with our species. Note also, for example, the ancient religious writings encouraging interpersonal confession and prayer as a means of healing (James 5:16, King James Version).

Freudian free association accords well with modern ethics where client autonomy receives primary consideration in the praxis of treatment plans (American Psychological Association, Principle E). Indeed, I used a modern form of free association with Kris on a regular basis, which involved first finding out where in her body she felt distress (another Freudian-based technique he and Breuer called "innervation" (Freud & Breuer, 1895/1937, p. 15), and then using mental imagery and breathing to calm her and place her in a parasympathetic state. This allowed Kris to access unconscious associations in her past and to process them which, in turn, helped clear intrusive images and improve executive control functions of the brain.

Transference. Gabbard and Horowtiz (2009) defined transference as a process where "representations of figures from one's past and the feelings associated with those figures—shape the patient's perception and interpretation of experience, leading to stereotyped or rigid responses" (p. 517). This view of transference encompasses the totality of one's experiences in life, rather than exclusively those taking place in therapy—i.e. what H. Stack Sullivan coined as *parataxic distortion* (described in Yalom & Leszcz, 2005, p. 21).

When it comes to trauma and transference, the dysregulating effect of trauma associated with the balance between pleasure and reality leads to stereotypic and/or rigid interactions with others including unconscious compulsions to repeat (Freud, 1911/1958, p. 218).

The concept of transference comes into Freud's overall theory for Complex PTSD survivors because trauma, by definition, intrudes into one's life and takes center stage, naturally leading to strong perceptual biases that preclude adaptive function in the reality of one's here and now perpetuating dysfunction (Berntsen & Rubin, 2006; Rubin & Berntsen, 2009; Ogle, Rubin, & Siegler, 2015; Rubin, Berntsen & Bohni, 2008; and

Rubin, Dennis, & Beckham, 2011).

As outlined above, Freud's concepts remained influential and dominant among physicians and psychiatrists treating stress reactions in World War I and World War II; they were, likewise, dominant in my own conceptualization of Kris' treatment in this case study.

Janet (b. 1859 – d. 1947): Fixed ideas & vehement emotions, dissociation, traumatic memories and functional impairment. Janet's influence upon psychology derives from his writing on memory and the impact of trauma upon memory and learning. This is ironic because, relative to Freud, Janet's work is mostly forgotten. Nevertheless, the literature on traumatic memory generally begins with Janet's concepts of fixed ideas and dissociation (Edwards & Jacobs, 2003; Leys, 2000, p. 52; Nemiah, 2002; van der Kolk, 2000, p. 238; van der Kolk & van der Hart, 1989). There does appear to be a growing/resurgent interest in Janet's writings as researchers and clinicians are currently referring to his ideas to inform neurobiological models to understand trauma related dissociative phenomena (Lanius et al., 2014).

Fixed ideas/vehement emotions. Janet (1907/1920) wrote that, "with hystericals, ideas have a greater importance, and, above all, a greater bodily action than with the normal man. They seem to penetrate more deeply into the organism, and to bring about motor and visceral modifications" (p. 325). According to Janet (1901), treatment for these fixed ideas involved "bringing unconscious 'fixed ideas' to conscious awareness" and integrating them within the patient's milieu of memory (Janet, 1901, p. 278).

Young (1995) wrote of Janet's concept of how memory operates that:

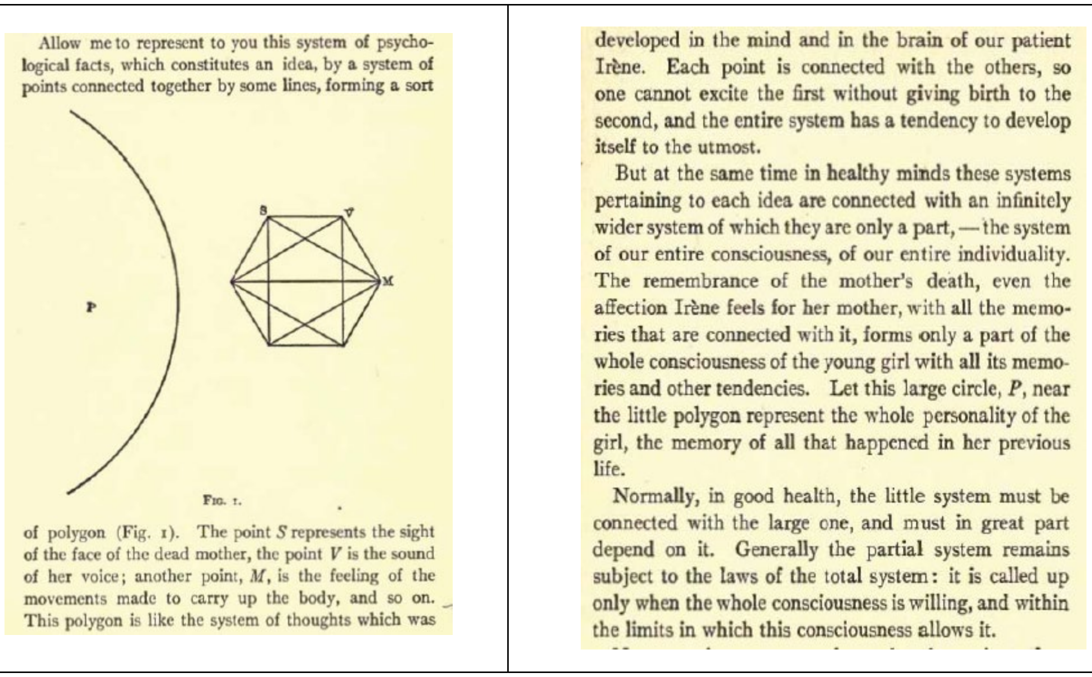
> Ordinary memories fade. They are eventually confused and conflated with other ordinary memories and are assimilated into webs of remembrance. They belong to

> the past. When they penetrate into the present, it is as nostalgia, regret, and a desire for things now gone. In each of these respects, the pathogenic secret is different. Years after its creation, it remains unassimilated, a self-renewing presence, perpetually reliving the moment of its origin (p. 29).

Dissociation. Peritraumatic dissociation predicts PTSD (Brewin & Holmes, 2003; Friedman, et al., 2007, p. 6). Janet (1907/1920) articulated a theory of traumatic dissociation that emphasized the debilitating effects of traumatic memory upon a traumatized person's life. He conceptualized traumatic memories as arborized structures dissociated from the main memory tree/network. In other words, they were uncontextualized, fragmented, and dissociated, situationally-accessed memories (SAMs), encapsulated or dissociated from contextualized, verbally-accessed memories (VAMs) (pp. 41-42; Brewin et al., 1996, 2001, 2010).

Traumatic memories. Van der Kolk (1989) wrote how Janet had first observed that trauma survivors are haunted by reminders of their trauma. Rather than the original trauma, itself, it is the perception and unbidden memory of the trauma that triggers and maintains symptomology (van der Kolk, 1994, p. 253) For Janet (1907/1920) this quarantine of traumatic memory results in situations where although only a small node of the traumatic memory may be triggered, the entire structure of encapsulated traumatic memory becomes activated resulting in intense emotional states which have inadequate context or meaning (Edwards & Jacobs, 2003; van der Kolk & van der Hart, 1989).

Janet (1907/1920) illustrated this idea as follows:



Allow me to represent to you this system of psychological facts, which constitutes an idea, by a system of points connected together by some lines, forming a sort

Fig. 1.

of polygon (Fig. 1). The point *S* represents the sight of the face of the dead mother, the point *V* is the sound of her voice; another point, *M*, is the feeling of the movements made to carry up the body, and so on. This polygon is like the system of thoughts which was developed in the mind and in the brain of our patient Irène. Each point is connected with the others, so one cannot excite the first without giving birth to the second, and the entire system has a tendency to develop itself to the utmost.

But at the same time in healthy minds these systems pertaining to each idea are connected with an infinitely wider system of which they are only a part, — the system of our entire consciousness, of our entire individuality. The remembrance of the mother's death, even the affection Irène feels for her mother, with all the memories that are connected with it, forms only a part of the whole consciousness of the young girl with all its memories and other tendencies. Let this large circle, *P*, near the little polygon represent the whole personality of the girl, the memory of all that happened in her previous life.

Normally, in good health, the little system must be connected with the large one, and must in great part depend on it. Generally the partial system remains subject to the laws of the total system: it is called up only when the whole consciousness is willing, and within the limits in which this consciousness allows it.

Figure 2.15. Janet's Illustration of His Concept of Fixed Ideas Dissociated From the Overall Memory System. Adapted from Janet, P. (1907/1920). *The major symptoms of hysteria: Fifteen lectures given in the medical school of Harvard University* (2nd ed.). New York: The Macmillan Company, pp. 41, 42. (See also Bouton, Winterbauer, & Todd, 2012 who outline recent research on relapse processes after extinction relying upon a conceptualization of memory consistent with Janet's formulation illustrated above).

Un-metabolized *proprioceptive* (Siegel, 2010), or *neuroceptive* (Porges, 2011) data comes into the here-and-now experience of trauma survivors as a confusing flood of negative affect. These traumatic memories run deep and lead to "the retraction of the field of personal consciousness … a tendency to the dissociation and emancipation of the system of ideas and function that constitute personality" which, on a practical level, leads to "an exhaustion of the higher functions of the encephalon" (Janet, 1907/1920, pp. 332, 333. See also van der Hart, 2008).

Janet identified dissociation as a "central mechanism of the mind's defensive organization"; whereas, Freud favored repression as a defense to anxiety associated with traumatic memory (Braun, 1988a, p. 4). Both conceptualizations involved a lack of adaptive response to current environmental needs where automatic/unconscious or reflexive behavior emerges when associative phenomena triggers unprocessed trauma

(Solms, 2013). Both Freud and Janet identified traumatic memory as a key target for intervention. Freud and Breuer viewed traumatic memory as malignant unbound quanta of energy which could be discharged by an emotional recollection of the trauma. Janet viewed traumatic memory as pockets of representation dissociated from the patient's larger system of meaning. Both of these views informed my work with Kris.

Current research building upon Freud & Janet. Several lines of trauma research today build upon the foundation Freud and Janet laid down in the late 19th and early 20th Century. Brewin et al. (1996) reviewed the literature on PTSD symptomatology to formulate a model that best accounted for the research data on the subject to that time. The literature fell into two groups: **1.** The impact of trauma upon *generalized conceptual representations* in the mind, i.e., generalized feeling and belief states that undermine fundamental states of feeling safe and contented (Shapiro, 2010, p. 180); and, **2.** *Somatic/sensory representations* affected by trauma, consisting of intrusive feelings, emotions, and images.

Brewin et al.'s (1996, 2010) dual representation model of PTSD & other mental disorders. Brewin et al. (1996) asked whether these two groups of representation associated with traumatic memory might "have different underlying [neurophysiological] mechanisms" (Brewin et al., 1996, p. 675). As it turns out, they do. This led to the original dual representation theory of PTSD outlined in the following figure:

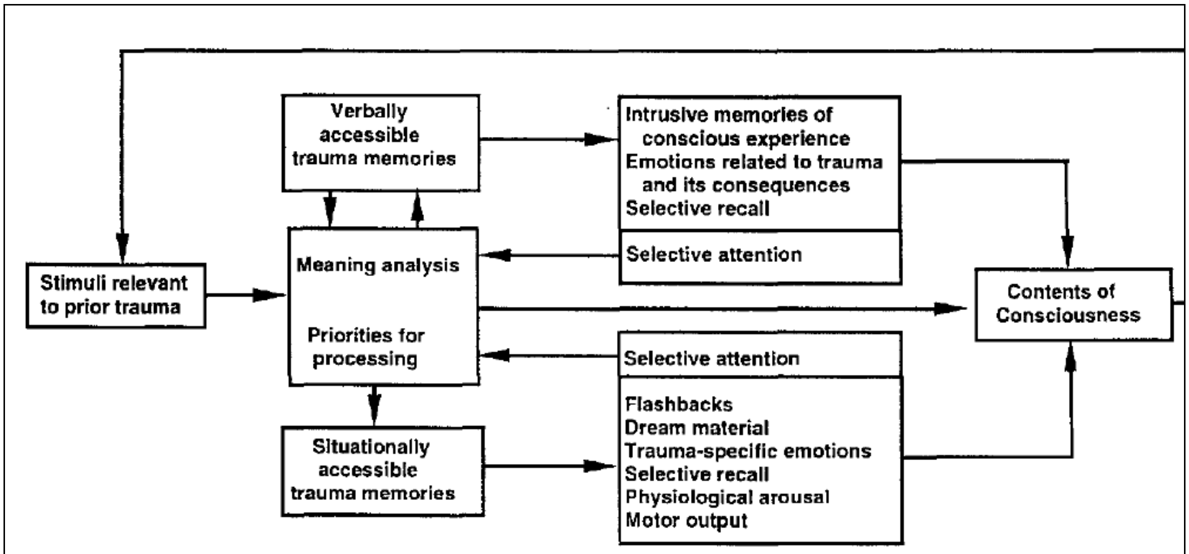

Verbally accessible trauma memories
Intrusive memories of conscious experience
Emotions related to trauma and its consequences
Selective recall
Selective attention
Meaning analysis
Priorities for processing
Stimuli relevant to prior trauma
Contents of Consciousness
Selective attention
Flashbacks
Dream material
Trauma-specific emotions
Selective recall
Physiological arousal
Motor output
Situationally accessible trauma memories

Figure 1. Cognitive processing of stimuli relevant to prior trauma. Adapted from "Cognitive Change Processes in Psychotherapy," by C. R. Brewin, 1989, *Psychological Review, 96*, p. 383. Copyright 1989 by the American Psychological Association.

Figure 2.16. Original Dual Representation Theory of Brewin et al. (1996). Adapted from Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of posttraumatic stress disorder. *Psychological Review, 103*(4), 670-686. doi:10.1037/0033-295X.103.4.670, p. 676.

A person consciously experiences verbally accessed memories (VAMs). Verbally accessed memories (VAMs) include autobiographical memory and can be accessed voluntarily. Traumatic verbally accessed memories (VAMs) involve generalized traumatic alterations in beliefs and structures of meaning about self, others, and the world and involve cortical processes which the client can access voluntarily.

Situationally accessed memories (SAMs) cannot be voluntarily accessed. Similar situations trigger situationally accessed memories (SAMs) automatically and intrusively. With situationally accessed memories (SAMs) subconscious sensory motor feeling states with embedded innate (usually negative or alarming) sensations are activated automatically via subcortical processes. Whereas, verbally accessed memories (VAMs) "can be deliberately and progressively edited", situationally accessed memories (SAMs) cannot (Brewin et al., 1996).

Working through, or emotionally processing traumatic memory involves verbally accessed memory (VAM) work which addresses “negative affects generated by the implications of the trauma,” ***and*** situationally accessed memory (SAM) work which can change the nature of situationally accessed memories (SAMs) from alarm to acceptance (Ibid). Farb (2007) recently demonstrated that as little as 8 weeks of mindfulness training (including exercises designed to promote greater somatic awareness and metacognitive nonjudgmental observation of one’s own cognitive activity) improves brain function and “reduces vulnerability to dysphoric reactivity” (p. 25)

In our therapy sessions, Kris and I addressed her trauma-related verbally accessed memories (VAMs) through psychoeducation, discussing God, the church, her family, etc., as they related to her trauma. We used imagery, breathing, and somatic awareness to reprocess/reconsolidate her traumatic situationally accessed memories (SAMs).

Freud and Breuer’s (1895/1937) work with Anna O. provided a prototypical procedure. After resourcing their patient using hypnosis (I use breathing and imagery), they traced Fraulein Anna O.’s “clinical symptoms to pathogenic dissociated memories” (Nemiah, 2002, p. 6). Once Freud and Breuer (1895/1937) were able to bring the traumatogenic materials to the surface “with their full [emotional] intensity” the symptoms vanished forever (p. 2-3). Most likely what Freud and Breuer had stumbled upon was what researchers have recently identified as memory reconsolidation where implicit memories are unlocked by replication of the internal emotional milieu associated with the original encoding and a concomitant juxtaposition of new meaning associated with the old meaning associated with the underlying pathogenic memory (Dahlitz & Hall, 2015).

So too with Kris and I regarding her situationally accessed memories (SAMs). We used breathing, imagery and ego state work to replicate state dependent memories laid down during adverse childhood events. When accessed in the context of a safe therapeutic relationship new meaning can be juxtaposed upon the prior traumatic memory resulting in a contextualization process mediated by the Hippocampus (Hogberg, Nardo, Hallstrom & Pagani, 2011). Brewin et al.'s (1996) tripartite hierarchy provides a good heuristic for conceptualizing Kris' goals in working through her traumatic memories by emotional processing:

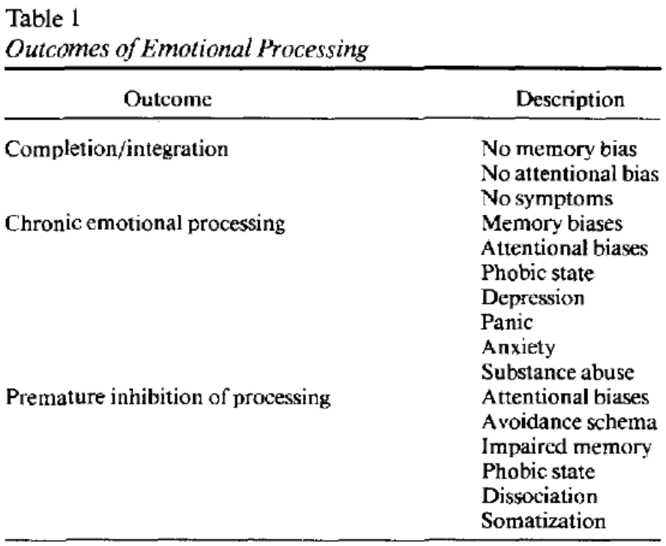


Table 1

Outcomes of Emotional Processing

Outcome	Description
Completion/integration	No memory bias No attentional bias No symptoms
Chronic emotional processing	Memory biases Attentional biases Phobic state Depression Panic Anxiety Substance abuse
Premature inhibition of processing	Attentional biases Avoidance schema Impaired memory Phobic state Dissociation Somatization

Figure 2.17. Treatment goals in processing traumatic memories. Adapted from Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of posttraumatic stress disorder. *Psychological Review, 103*(4), 670-686. doi:10.1037/0033-295X.103.4.670, p. 678; See also van der Kolk et al. (1996).

Kris and I made substantial progress over the course of treatment in this regard. When we began therapy she occupied the lower two stages of Figure 2.17. As time and our therapeutic relationship progressed, she began integrating the traumas of her life; and the vehemence of her memory and attentional biases interfering with adaptive function began to ameliorate, softening over time in favor of acceptance and a diminution of symptoms.

Recently, Brewin et al. (2010) revised their dual representational theory of PTSD to take into account the research and theoretical literature that accumulated after their 1996 article—especially neuroimaging studies. In addition to being able to describe underlying neural processes associated with verbally accessed memories (VAMs) and situationally accessed memories (SAMs) relative to PTSD, they tracked the role of intrusive images in the etiological maintenance of a variety of other mental health conditions including depression, anxiety, eating disorders, and body perception disorders.

In Brewin et al.'s (2010) updated review article verbally accessed memories (VAMs) are now called contextualized representations (C-reps), i.e. abstracted contextual representations bearing the stamp of Hippocampal contextual neuro-processes. Contextualized representations (C-reps) include declarative, semantic, and autobiographical memory, are subject to voluntary recall.

Sensory-bound representations (S-reps) replaced situationally accessed memories (SAMs) in the revised theory and include emotionally salient, state-dependent, implicit, often fragmented images and feeling states. Sensory-bound representations (S-reps) tend to be intrusive and unconscious. Images are broadly defined as cognition without verbal content (Brewin et al., 2010, p. 211).

Brewin et al. (2010) explained the current state of research with the following diagram outlining both normal and pathological encoding of traumatic events:

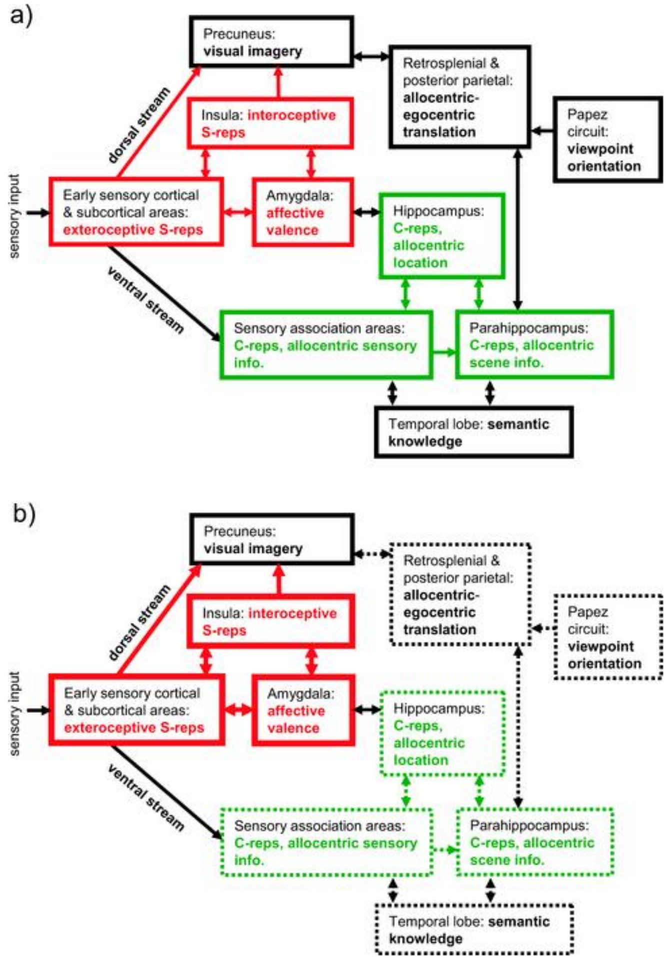

a)
Precuneus: visual imagery
Retrosplenial & posterior parietal: allocentric-egocentric translation
Papez circuit: viewpoint orientation
dorsal stream
Insula: interoceptive S-reps
sensory input
Early sensory cortical & subcortical areas: exteroceptive S-reps
Amygdala: affective valence
Hippocampus: C-reps, allocentric location
ventral stream
Sensory association areas: C-reps, allocentric sensory info.
Parahippocampus: C-reps, allocentric scene info.
Temporal lobe: semantic knowledge
b)
Precuneus: visual imagery
Retrosplenial & posterior parietal: allocentric-egocentric translation
Papez circuit: viewpoint orientation
dorsal stream
Insula: interoceptive S-reps
sensory input
Early sensory cortical & subcortical areas: exteroceptive S-reps
Amygdala: affective valence
Hippocampus: C-reps, allocentric location
ventral stream
Sensory association areas: C-reps, allocentric sensory info.
Parahippocampus: C-reps, allocentric scene info.
Temporal lobe: semantic knowledge

Figure 1. A schematic model of memory encoding, showing the approximate regions and pathways involved in, and the areas supporting, abstracted contextual representations (C-reps, in green) and sensory-bound representations (S-reps, in red). a: Normal encoding of a traumatic event. b: Pathological encoding of a traumatic event, showing up-regulation of S-reps, down-regulation of C-reps, and disconnection between S-reps and C-reps. Heavy lines indicate stronger representations and pathways; dashed lines, weaker representations and pathways. Note the necessarily schematic style (e.g., many pathways and regions are omitted, and *Hippocampus* refers to the extended hippocampal formation and its subcortical connections).

Figure 2.18. Normal and pathological encoding of Contextualized Representations (C-reps) and Sensory Based Representations (S-reps) in Brewin et al.'s (2010) revision of Brewin et al.'s (1996) dual representation theory of PTSD. The new model involves images and various psychological disorders including but not limited to PTSD. Adapted from Brewin, C. R., Gregory, J. D., Lipton, M., & Burgess, N. (2010). Intrusive images in psychological disorders: Characteristics, neural mechanisms and treatment implications. *Psychological Review, 117,* 210–232, p. 224.

Intrusive imagery assaults the client when the Hippocampus fails to contexualize sensory bound representations (S-reps) with contextual (C-rep) information/meanings. Bird, Bisby, and Burgess (2012) described a Hippocampal transformation of *egocentric* sensory bound representations (S-reps) to *allocentric* [i.e. other focused or ontologically informed] contextual representations (C-reps) in rats. Given the importance of navigation to rats, their results suggest that with human traumatic memory problems evaluative processes potentiating perceptual biases favoring fear-based reactions overwhelm normal regulatory processes of the brain (Bird et al., 2012; Dore et al., 2015).

In our therapy sessions, I used a modified form of mental imagery, breathing exercises and ego state experiential forays into Kris' childhood to facilitate this process of contextualizing her traumatic memories. I used bilateral music to down-regulate the affective intensity of traumatic sensory bound representations (S-reps) and to facilitate neural activation across the right and left hemispheres through the Corpus Callosum. Using her imagination, Kris experienced relevant childhood experiences from a place of relative emotional and physiological calm. As these memories were experientially accessed, I hypothesized Kris' Hippocampus and Associational Cortices integrated her traumatic sensory bound representations (S-reps) into contextualized representations (C-reps) providing her with greater control over them (Brewin et al., 2010, p. 227).

More recently, Wood and Bechara (2014) described sensory bound representations (S-reps) as part of an *impulsive*, Amygdala-centered neurocircuitry, and contextualized representations (C-reps) as part of a *reflective,* Ventral Medial Prefrontal Cortex-centered (vmPFC) neurocircuitry. Between these two connectomes lies the Insula (key to interoceptive awareness) and Striatum (key to attachment and reward) employed in decision-making. Their description explains why traumatized individuals such as Kris often make decisions with short-term escape or gain in mind without counting the long-term loss consequences of impulsive behavior—e.g., Kris' repeatedly having sex with an old friend which lead to repetitive periods of shame.

Functional impairment, state dependent memory & preference for the familiar studies. Janet (1901, 1907/1921) wrote about the deteriorating effect of traumatic memory upon a person's ability to reach into the preconscious (Freud, 1900/1953) and draw upon experience to respond to the needs of the moment. Instead of being able to stay focused upon a goal, traumatized people are constantly derailed by situationally accessed representations (S-reps)/ state-dependent memories that hijack rational adaptive behavior in favor of stereotypic, reflexive behavior that favors familiarity over flexible reality based decisions.

State-dependent memories have been observed since clinicians began tracking the experiences of their patients; however, demonstrating the phenomenon experimentally came slowly. Early studies of state dependent memory lacked consistent results (Bower, 1981; Bower & Mayer, 1989). However, the more recent research, addressing methodological issues identified in earlier tests, has established the phenomenological validity of state-dependent memories when the affective valence crosses a sufficient threshold (Lang, Craske, Brown, & Ghaneian, 2001; Lewis & Critchley, 2003).

Generally, “state-dependent memory (SDM) refers to superior performance when information is retrieved in the same emotional state in which it was learned” (Lang et al.2001, p. 695). However, specific to traumatized people, state-dependent learning has to do with unwanted triggering of confusing and inappropriate emotional and physical trauma reactions from the past associated with triggers in the present (van der Kolk, 1989).

When traumatic events overwhelm the normal integrative/memory consolidation systems, “fragmented sensory and emotional traces” of state dependent memories intrude with flood-like intensity into conscious awareness when triggered by environmental similarities (Lange et al., 20010; van der Kolk, 2014, p. 176). This flooding occurs when any node in the network of “memory traces of the original sounds, images and sensations are reactivated” (van der Kolk, 2014, p. 176; see also, Cahill, & McGaugh, 1998; Janet, 1907/1920; and, van der Kolk & Fisler, 1995).

Van der Kolk (1994) used the following Figure to underscore the impact of trauma upon normal memory brain circuits:

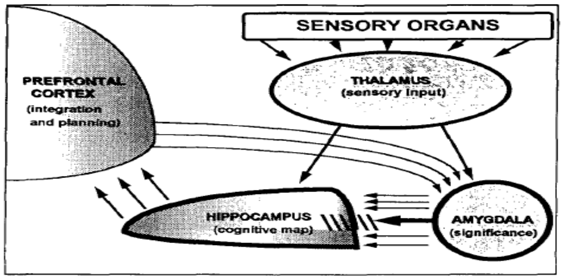


FIGURE 2.
Schematic representation of the effects of emotional arousal on declarative memory. The thalamus, amygdala, and hippocampus are all involved in the integration and interpretation of incoming sensory information. Moderate to high activation of the amygdala enhances the long-term potentiation of declarative memory that is mediated by the hippocampus, accounting for hypermnesias for stressful experiences. Excessive stimulation of the amygdala interferes with hippocampal functioning, inhibiting cognitive evaluation of experience and semantic representation. Memories are then stored in sensorimotor modalities: somatic sensations and visual images. These emotional memories are thought to be relatively indelible, but their expression can be modified by feedback from the prefrontal cortex.[3,16,95,98,118]

Figure 2.19. Synthesis of Research on Effect of Traumatic Stress Upon Memory Formation. Adapted from van der Kolk, B. A. (1994). The body keeps the score: Memory and the evolving psychobiology of posttraumatic stress. *Harvard Review of Psychiatry*, *1*(5), 253-265, p. 259.

When the normal cognitive evaluation of experience and semantic representation goes awry as a result of a hypersensitive amygdala, there is a high probability the traumatized person will resort to stereotypical/regressed behavior characteristically familiar but maladaptive. This phenomenon has been demonstrated with mice in laboratory tests (Mitchell, Osborne & O'Boyle, 1985; van der Kolk, Greenberg, Boyd & Krsytal, 1985). A strong case has been made for the homologous cross-species generalizability of neuroscientific research the first two developments in MacLean's (1990) phylogenic history of our triune brain—i.e. the evolutionarily oldest reptilian brain stem which is foundational to the newer evolved paleo-mammalian limbic/basal ganglia (Northoff & Panksepp, 2008; Panksepp, 1998). Unprocessed traumatic memories produce feeling states in the present that are dealt with through resorting to past, familiar (and automatized) behaviors—a form of transference or repetition (Freud, 1914/1958b; Solms, 2013; van der Kolk, 1989).

Linehan (1993) captured to essence of mental flexibility which is the antithesis of rigid, reflexive, stereotypic and repetitive behavior in her concept of *willingness* which responds to "a situation in terms of what the situation needs," versus an attitude of *willfulness* which responds "in a way that resists what a situation needs … in terms of one's own needs" (p. 39, crediting May, 1992). However, the ability to exercise choice of "willing" versus "willful" presupposes a freedom of will, which is definitely compromised in a person such as Kris suffering with traumatic memory.

Additionally, bottom-up floods of situationally accessed intrusive *evaluative* representations (S-rep)/ Limbic and Basal Ganglionic activity in the brain *precede* conscious *reflective* awareness in the Cortex by 200-750 milliseconds (Howard, Ghannam, & Libet, 2002; Libet, 1993, 2003, 2003a). The importance of this phenomenon warrants discussion of William James' (1892) original formulation of volition, and recent research and thought about human choice and decision-making. Janet emphasized how traumatic memory undermines adaptive function by disrupting attention and consciousness. Such disruption undermines human volition and executive function—a major problem for Kris who struggled with getting off the living room couch where she watched television for many hours on a daily basis and, sometimes, for several days in row.

William James (b. 1842, d. 1910): Human will & volition. About a year and a half into treatment Kris complained she couldn't get herself "to do anything." She had wanted to paint one of the bathrooms in her house for months but couldn't get started. She also had trouble filling out Social Security forms and completing other paperwork for court. This went far beyond procrastination; her problem was with volition: she had no willpower.

James (1892) described volition as an “effort of attention” (p. 450). He further wrote:

> *The essential achievement of the will, when it is most ‘voluntary,’ is to attend to a difficult object and hold it fast before the mind.* The so-doing is the *fiat;* and it is a mere physiological incident that when the object is thus attended to, immediate motor consequences should ensue …. *Effort of attention is thus the essential phenomenon of will[power]*” (Ibid, italics in the original).

James (1892) distinguished between volitional effort and muscular effort. Muscular effort involved the “disagreeable” physical feelings we experience in exercising the *fiat* of *volitional effort*. Thus, when running a marathon the fiat of volitional effort entails maintaining one’s effort of attention on the task of completion, in spite of the clamor for attention made by muscular stress and fatigue.

James (1982) elaborated that the *fiat* of *volitional effort* might be particularly heroic when “getting out of bed and bathing” combines with “a cold morning” (p. 452) or a soldier holding his ground while being fired upon:

> The strong-willed man, however, is the man who hears the still small voice unflinchingly, and who, when the death-bringing consideration comes, looks at its face, consents to its presence, clings to it, affirms it and hold it fast, in spite of the host of exciting mental images which rise in revolt against it and would expel it from the mind… the attention must be kept strained on that one object until at last it *grows*, so as to maintain itself before the mind with ease. This strain of attention is the fundamental act of will (Ibid, p. 452, italics in original).

The connection between the "motor centres" [sic] of the brain and the attentional centers of the brain entrained by the will so defined results in "obedience of the bodily organs … as a matter of course" (James, 1892, p. 453). Whether the issue is one of inhibition or one of effort, the bottom line with the will involves sustaining a mental representation in the midst of distracting clamor (Ibid, p. 454).

Human will is measured by the effort required to maintain conscious attention upon an idea or goal (James, 1892, p. 455). This effort of attention has moral value; however, he also considered such discussions beyond the realm of psychology. The quantum of energy/effort associated with the exercise could not be measured in James's day. Such *qualia* "—the ineffable raw qualities of experience—and consciousness" (Ramachandran, 2011, p. 71) were unknown in his day and remain so at present. However, with the growing presence of quantum physics in psychology measurement of attentions, consciousness and human willpower is on the scientific horizon (Kefatos & Nadeau, 2000; Schwartz, Stapp, & Beauregard, 2005).

Classical/Newtonian physics established a barrier for science in the late 1800s and early 1900s because according to classical principles of physics the nonmaterial could not affect the material. Epiphenomenalism maintains that the mind cannot produce material effects: "brain is the cause of all the mental events in the mind but the mind itself is not the cause of anything… (Schwartz & Begley, 2002, p. 56).

Newtonian physics & quantum mechanics: Cutting the Gordian knot of Cartesian dualism. James (1890) described the mind-body connection as an "apposition" (a relationship of equals) where a mixture of "clay and flame, of brain and mind … hang indubitably together and determine each others' being, but how or why, no mortal may ever know" (p. 182). His agnosticism about how the brain and mind hang together, or, theoretically, how the mind can change the brain remained with scientists until quantum physics began to supplant classical/Newtonian physics to explain reality (Schwartz et al., 2005).

Schwartz et al., (2005) explained that in classical physics the observer had no impact upon what was observed—the observer of phenomena stands in the place of witness only and, therefore, cannot affect outcomes or phenomena. Einstein's famous statement that "God does not play dice" was directed at bolstering this aspect of classical physics against the subjective uncertainty of outcome seen and described in quantum physics theory and empirical experiments (Halpern, 2015, p. 2; See also Einstein, Podolsky and Rosen, 1935).

The philosophical implication of classical Epiphenomenalism taken to its logical extreme leads to biological determinism, where neurophysiological brain activity becomes its own causative force; and human effort, free will, and responsibility become meaningless.

Quantum mechanics appears to restore human responsibility and free will to the mind-body connection by recognizing human subjectivity as inherent in the mathematical calculations of reality itself (Heisenberg, 1949; Schrodinger, 1935; von Neumann, 1955). Several important experiments have empirically verified this subjective element in calculating reality as it relates to entanglement (Gisin & Zbinden, 2008; Pan, Bouwmeester, Daniell, Weifurtner, & Zellinger, 2000; Salart, Baas, Branciard).

Thus, with quantum physics, probability rather than certainty better describes reality. Observation of phenomena, itself, brings about probability. Thus, according to the Quantum Zeno Effect (QZE), repeatedly observing phenomena impacts measurement (Misar & Sudarshan, 1977). Schwartz et al. (2005) used Misar and Sudarshan's (1977)

Quantum Zeno Effect (QZE) to explain the observation that the exercise of free will changes the neurophysiological structure and function of the brain by focusing attention on one aspect of brain function and, thereby, affecting the probability of neurophysiological outcome (Ochsner, Bunge, Gross & Gabrieli, 2002; Schwartz & O'Neil, 2004).

Ochsner et al.'s (2002) study was the first to demonstrate physical effects of mental effort changing brain function. The study involved teaching participants how to reappraise pictures evoking strong emotional reactions. Functional magnetic resonance images (fMRIs) were taken of the participants merely attending to the pictures and then of their brains while reappraising the pictures. For example, the reappraisal of a picture of a woman crying outside a church (presumably because someone close to her had died) as a woman crying outside a church who was now crying for joy over her best friend's marriage to the love of her life resulted in significant changes in brain function which were captured in the functional magnetic resonance images (fMRIs).

The study identified prefrontal control processes that down-regulate emotionally activated emotional input processes of the right amygdala and left orbital prefrontal cortex:

Figure 2. Group-averaged brain activations when reappraising or attending to feelings in response to the most negative photos. Two contrasts are shown: The Attend > Reappraise (shown in red) contrast shows regions important for emotion processing that are significantly modulated by reappraisal and the Reappraise > Attend (shown in green) contrast shows regions significantly activated when exerting cognitive control over emotion activated by reappraisal. Top and bottom brain images on the right show regions of the left dorsal and ventral LPFC associated with cognitive control that were activated by reappraisal. Right side and bottom left brain images show reappraisal-related modulation of a region of left MOFC associated with representing the affective properties of stimuli.

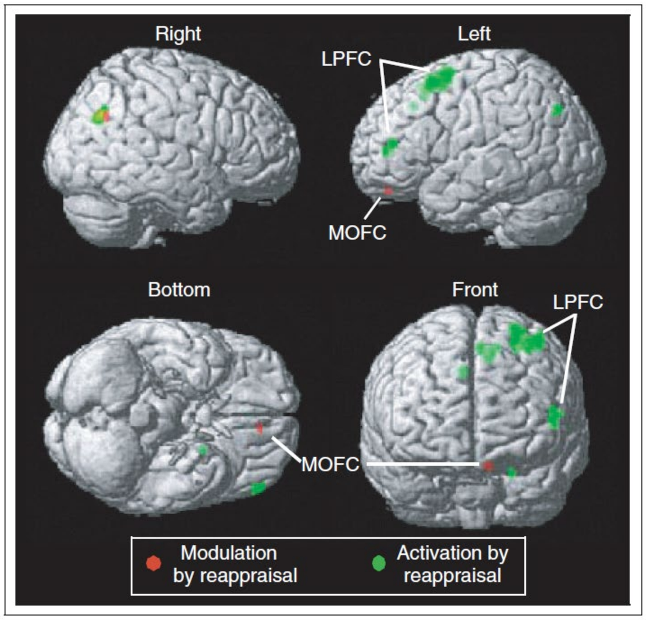


Figure 2.20. Cognitive reappraisal mediates amygdala and orbital prefrontal emotional activation. Adapted from Ochsner, K. N., Bunge, S. A., Gross, J. J. & Gabrieli, J. D. E. (2002). Rethinking feelings: an fMRI study of the cognitive regulation of emotion. *Journal of Cognitive Neuroscience, 14,* 1215–1229, p. 1217.

Descartes' *cogito ergo sum* served a purpose for hundreds of years. His separation of mind from body allowed an institutional separation along the same lines. The Church and Science each had its own domain. When Cartesian dualism/epistemology filtered into the fabric of cultural thinking and became an implicit assumption informing how questions were posed and decisions were made during the Enlightenment, scientific inquiry could proceed without having to placate and gain the approval of Church authorities (Halpern, 2015). However, when it came to explaining the mind's relationship to the body, Cartesian dualism increasingly ran afoul of empirical research and clinical wisdom.

Classical/Newtonian physics also ran afoul of empirical research when it came to explaining the connection between the mind and the body. Although the mind is said to emerge as an epiphenomenon of operations of the brain, the idea that the brain changes itself cannot square with the idea of human responsibility. Moreover, epiphenomenalism fails to account for a growing body of empirical research that has emerged in the past 50 years supporting the observation that the mind really does change the function and structure of the brain through intentional effort (Searle, 1983).

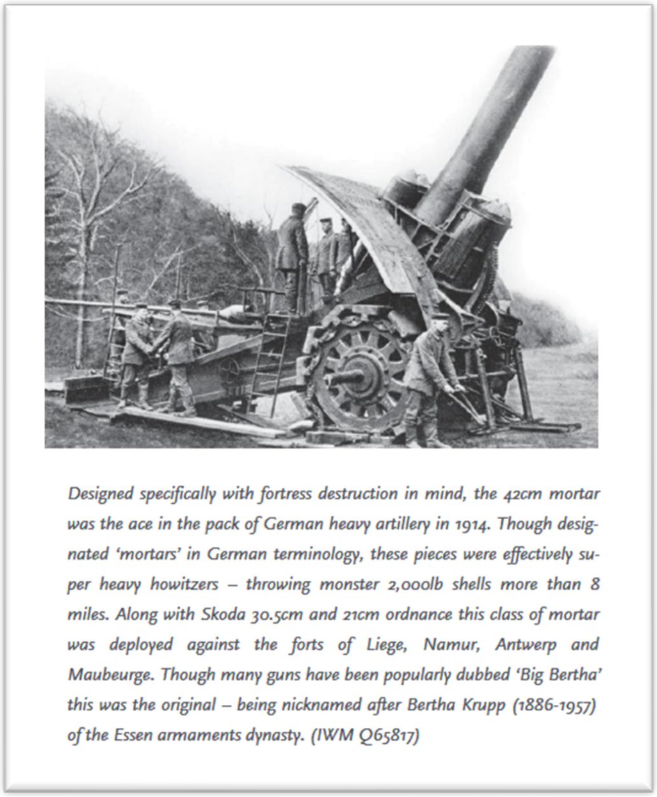
Schwartz & Begley (2002) summarized these ideas, stating that James's (1890) statement that "volitional effort is effort of attention" should "replace *cogito ergo sum* as the essential description of the way we experience ourselves and our inner lives" (p. 364).

Kris suffered from extreme negativity/neuroticism and chronic, somaticized pain. Both of these realities resulted in an initially adaptive drawing back from engaging with life in order to heal. However, she was stuck in Brewin et al.'s (1996) chronic emotional processing and inhibition of processing (p. 678; see also *Figure 2.17* above at p. 67). Once she began to recognize that her original intent in withdrawing involved nursing her wounds and regaining her strength, she began to also recognize it was now time to start getting back into the world.

A new intent with a new focus of attention was needed. When she began to focus that attention on developing her relationships, personal strength, new possibilities, spiritual change and appreciation for life began to grow (Blackie, Jayawickreme, Forgeard, & Jayawickreme, 2015). Kris' progress in therapy came with a recognition that her "intention is made causally efficacious through attention" (James, 1890, p. 360).

World War I and Shell Shock (1914-1918)

In World War I mankind showed even more ingenuity than that demonstrated in the American Civil War when it came to manufacturing new weapons. The new machine guns fired 400-600 rounds per minute. Heavy artillery (Big Bertha and The Paris Gun, with a range of 75 miles) propelled huge missiles at the enemy, vaporizing plots of land and men. Poisonous gas terrorized soldiers in the trenches. Hand grenades and trench warfare, itself, all contributed to unknown levels of war-related stress and terror inflicted upon soldiers in World War I (Brown, 2013; Collins, 2008, pp. 347-348). Salmon (1917) wrote that the unexpectedly high number of psychological casualties in World War I owed itself to unprecedented exposure to “sustained shell fire with high explosive” which “characterized most of the fighting” (p. 27).



Designed specifically with fortress destruction in mind, the 42cm mortar was the ace in the pack of German heavy artillery in 1914. Though designated ‘mortars’ in German terminology, these pieces were effectively super heavy howitzers – throwing monster 2,000lb shells more than 8 miles. Along with Skoda 30.5cm and 21cm ordnance this class of mortar was deployed against the forts of Liege, Namur, Antwerp and Maubeurge. Though many guns have been popularly dubbed ‘Big Bertha’ this was the original – being nicknamed after Bertha Krupp (1886-1957) of the Essen armaments dynasty. (IWM Q65817)

Figure 2.21. New weapons of war in World War I occasioned new levels of war related stress. Adapted from Bull, S. (2014). *Trench: A history of trench warfare on the western front.* United Kingdom: Osprey Publishing, Ltd., p. 44

World War I caught military chains of command off guard. They had thought a volunteer army protected against stress reaction disorders because, unlike drafted soldiers, volunteers have courage. They also trusted that training would weed out weakness and develop mental mettle in the ranks. However, when the shells exploded and the machines guns fired, training and disposition helped but little, and the prevalence of shell shock skyrocketed (Jones and Wessely, 2007, pp. 166-167).

Military leaders responded with systemic policy changes in the treatment of traumatic stress. Shell shock/war psychoneurosis casualties were treated near the front and returned to their units quickly whenever possible (Crocq, 2014, crediting Salmon, 1917). A mnemonic developed in World War I capturing key features of battlefront treatment of traumatic stress: PIES (proximity, immediacy, expectancy and simplicity) (Dobson, 2000; Jones & Wessely, 2005). Recently, the military replaced PIES with BICEPS (brevity, immediacy, centrality or contact, expectancy, proximity, and simplicity) (Pols & Oak, 2007). Military PIES and BICEPS aside, in World War I unique stressors hit otherwise patriotic and courageous men in such a way that unprecedented emotionally traumatic casualties resulted.

An estimated 80,000 men in the British military suffered shell shock through the course of World War I and the term “shell shock” eventually became a household word (Bourke, 2011). Sadly, before the public and the military’s leadership gained sufficient knowledge about the condition, “not a few soldiers suffering from these disorders were executed by firing squads as malingerers” (Salmon, 1917, pp. 42-43; van der Kolk, 2014, p. 185). Others were “shot for cowardice” and “desertion” (Fenton, 2006). In 2006, the British government recognized these wrongs and posthumously pardoned 306 shell-shocked soldiers who had been executed during World War I (Ibid).

Like those 306 posthumously pardoned soldiers, Kris—and traumatized people, in general—often engage in atypical behavior when stressed. As developed in the above discussion about the repetition compulsion, a confluence of genetic, environmental challenges/trauma, and immature adaptation results in adult emotional dysregulation (Linehan, 1993) where current appraisals and perceptions go woefully awry (Lazarus, 1991, 1993, 1999; Lazarus & Folkman, 1984).

Under-modulation of emotion results in inappropriate outbursts of tears, anger, frustration, physical attacks, and so forth. Over modulation can result in seemingly catatonic, passively aggressive, or trancelike behavior (Brewin et al., 2010; Catarino, Küpper, Werner-Seidler, Dalgleish, & Anderson, 2015; Horowitz, 1998). Emotional dysregulation yields atypical behaviors which often lead to poor outcomes in court: dysregulated witnesses appear to be lying; dysregulated parents appear unhinged; dysregulated suspects seem guilty. Thus, when Kris went to court during the course of our treatment, she was often disadvantaged because her ex-husband knew her all too well and easily triggered under modulated emotional reactions before evaluators and even in court before the judge.

Treating Shell Shock in World War I. Hypnosis occupied a prominent place in treating shell shock--both as a means of cathartic release in accessing and discharging pent up emotion associated with traumatic memory, and as a means of accessing the trauma in order to reframe and integrate it into the patient's system of meaning (Leys, 2000, p. 85; Van der Hart & Brown, 1992, p. 135).

In 1921, three British army psychiatrists, Myers (1921), McDougall (1921), and Brown (1921) published a series of articles in the *British Journal of Psychology* debating their views on treating shell-shocked soldiers during World War I (Leys, 2000; MacMillan, 1997).

Charles S. Myers (b. 1873, d. 1946) & William McDougall (b. 1871, d. 1938). Myers and McDougall (1921) both conceptualized shell shock as a form of dissociation. The tremors of shell shock were conceived as byproducts of repression. Memories had to be freed from repression and integrated (Jones, 2012, p. 18). This emphasis on integration in the treatment of traumatic stress disorders presaged recent models such as the BASK

(Behavior, Affect, Sensation, Knowledge) (Braun 1988a)/BATS (Behavior, Affect, Thought, Sensation) (Braun 1988b) and Family Systems Therapy (FST) (Schwartz, 1995) which attempt to integrate domains of experience to restore the normally integrated functions of identity, memory, or consciousness for traumatized people (See also Van der Hart & Brown, 1992).

The idea of integration of dissociation loomed large in my treatment with Kris. Defensive dissociation results in an imbalance of power in the processing of affect, sensory sensation, and cognition, causing numerous long range negative developmental outcomes including emotional dysregulation, problematic executive function, negative self-image, relationship problems, somatization, and even spiritual malaise (Wood & Bechara, 2014).

Myers (1921) was the first to use the term “shell shock” in the literature (Myers, 1915, 1916, 1916a). However, the term itself was commonly used by those in the trenches long before it was published (Jones, 2012, p. 18). Myers’ 1915 article in the *Lancet* was among the first published accounts of shell shock-related amnesia, which Myers considered a primary target for treatment (p. 20). Myers (1921) emphasized narrative integration of dissociated memory in treatment, with the goal of helping the client recall and narrate the traumatic experience without getting overly activated (p. 20).

McDougall (1921) emphasized abreaction over integrative narration in treatment, defining abreaction as the revival of the same emotional feeling state that existed at the time of the traumatic event. Reviving this emotional state, he wrote, was essential to the cure, facilitating the creation of new meaning and, hence, a dissolution of dissociative processes which maintain shell shock symptoms (p. 23).

William Brown (b. 1881, d. 1952). Brown (1921) conceptualized the tremors and convulsions of shell shock victims as a conversion or displacement of fear and frustration over the helplessness and horror of the war itself into their own bodies. In this regard, he used hypnosis to recover blocked memories of the trauma, thereby affecting a cure (Leys, 2000, p. 84). He, too, advocated a form of McDougal's abreaction (Leys, 2000, p. 85).

The difference between abreaction and working through as envisaged by McDougall/Brown and Myers, respectively, largely resided in the division of labor. With abreaction, the physician bore more responsibility for the cure, the client occupying a more passive part in the process. With Myers' approach, the patient had to remember and cognitively integrate the meaning of the trauma upon his life going forward (Leys, 2000)—a more active agent in treatment.

Either way, therapists' work with trauma victims today—and my own work with Kris—bears a remarkable similarity to the work of Myers, Brown and McDougall with shell shock patients in World War I.

Physicians treating war neuroses/shell shock during World War I largely rejected Freud's etiological emphasis on sexual conflicts. Shell shock symptoms so obviously connected with issues of overwhelming fear and survival that Freud's theories of psychic conflict made little sense (Leys, 2000, p. 92). Freud (1920) eventually recognized too that the effects of trauma overrode the pleasure principle and the normal domain of neurosis which he conceptualized as defensive adaptations against anxiety.

As discussed below, Complex PTSD sufferers share a similar etiology with the shell shock victims of World War I. Both experience unbearably intense feelings of fear and helplessness. Additionally, an element of betrayal associated with a failure to protect enters into the picture of intense stress reactions to war, child abuse, and neglect (Grinker and Spiegel, 1943, 1945).

Jung on the value of abreaction (b. 1875, d. 1961). Jung (1928/1985) considered shell shock and traumatic neurosis to flow from an interplay between trauma and underlying developmental vulnerabilities which could be "traced back almost indefinitely into the earliest years of childhood" (p. 129 §257) … even as far back as "the patient's prenatal life …" (p. 130, § 258). In this regard, Jung articulated an early diathesis-stress theory of PTSD.

Jung also emphasized the importance of the therapeutic relationship to healing trauma. He wrote:

> The intervention of the doctor is absolutely necessary. One can easily see what it means to the patient when he can confide his experience to an understanding and sympathetic doctor. His conscious mind finds in the doctor a moral support against the unmanageable affect of his traumatic complex. No longer does he stand alone in his battle with these elemental powers, but someone whom he trusts reaches out a hand, lending him moral strength to combat the tyranny of uncontrolled emotion. In this way the integrative powers of his conscious mind are reinforced until he is able once more to bring the rebellious affect under control (Jung, 1928/1985, pp. 132-133 §§ 270, 271).

Helping trauma survivors like Kris (or the shell-shocked men of World War I) involves Jung's concept of coming alongside. Remembering trauma with a goal of reappraising takes a dyad— "it requires two minds to think one's most disturbing thoughts" (Salberg, 2015, p. 20, citing Ogden's, 2008 comments on Bion, 1962). The therapist's containing presence, like that of the infant's secure and loving mother, enables trauma survivors to integrate "meaningless sensation and errant, unlinked preconceptions [*beta elements* (Bion, 1962)] into meaningful, contained experience [*alpha function* (Bion, 1962)]" (Amrhein, 2002, p. 299).

And so it was with Kris and me. We spent at least 5 sessions during which little was said, other than for me to simply hold the space and allow her to compose herself in my presence as she struggled with emotionally overwhelming beta elements associated with her disability, divorce, and children.

W. H. R. Rivers (b. 1864, d. 1922) and Lewis Yealland (b. 1884, d. 1954). Rivers and Yealland represent polar nodes on the treatment spectrum of shell shock during World War I. Barker's (1996) novels in the *Regeneration Trilogy* did much to popularize these men and their contrasting approaches to treatment. Broadly speaking, Rivers took a psychodynamic approach and Yealland took a hyper-behavioral position.

Rivers' dissociation of the unconscious, instinct & reintegration. Rivers (1920) wrote that shell shock "upset the higher functions of the nervous system"—particularly the functional control of the cortex over the limbic/middle and lower brain (p. 2). Treatment involved reintegrating conscious awareness with the dissociated traumatic event stored in the subcortical nervous system (p. 17).

The empirical foundation for Rivers' formulation of shell shock came from his and Head's (1920) severed nerve experiment. They surgically cut and then reattached a nerve in Head's own hand to track the path of healing. As the nerve healed Head observed two stages: a *protopathic stage,* characterized by crude sensation, followed by an *epicritic stage,* where full sensation returned to the hand (pp. 22-23). Rivers wrote "the two modes of sensibility represent two stages in phylogenetic development," dissociated by the traumatic severing of the nerve (Rivers, 1920, p. 23). He conceptualized the lack of emotional and even somatic control associated with shell shock as an example of a protopathic process which would continue until the patient had a chance to integrate the trauma with the rest of his life (Rivers, 1920, p. 45).

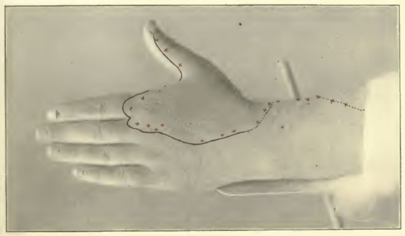


Fig. 49.

To show the extent of the loss of sensation produced by the operation.
The anæsthesia to cotton wool and to von Frey's hairs is bounded by the black line. The analgesia to prick and other cutaneous painful stimuli lay within the red crosses.
The darkness of the affected area is due to its deep red colour compared with the rest of the hand.

Figure 2.22. Rivers and Head's Experiment. Adapted from Rivers, W. H. R. & Head, H. (1920). A human experiment in nerve division. In H. Head, W. H. R. Rivers, J. Sherren, G. Holmes, Th. Thompson, & G. Riddoch (Eds.), *Studies in neurology: Vol I,* (pp. 225-327) London: Oxford University Press. Originally published in 1905 in *Brain, 31,* 321-450, p. 227.

Like Jung, Rivers emphasized the importance of the therapeutic relationship. He talked to his patients as equals, engaging them in the process of thinking about their illness and helping them understand it. I, too, attempted to educate Kris on Bacon's (1902/1620) proposition that "human knowledge and human power are really coincident [i.e., that knowledge is power]" (p. 30). Rivers' method involved treating men with a humane therapeutic "friendship and guidance" (Herman, 1997, p. 22; Robert, 2014, pp. 190-210; Southard, Fenton & Mills, 1919).

Yealland's electric shock treatment for shell shock. Yealland "decr[ied] psychoanalysis on the score of time limitations" (Southard, Fenton, &, 1919, p. 702). He claimed a 95% success rate in curing shell shock/war neuroses, justifying the inherent brutality in his treatment methods as a wartime necessity. "In war-time," he wrote, "adequate treatment is essential, and [his methods of electrical shock treatment] will make all the difference between a useless burden to the State and a useful civilian or even a useful soldier" (Adrian & Yealland, 1917, p. 867).

Yealland (1918) wrote about numerous allegedly successful case studies where he cured men in single session of faradic (electric shock) treatment. In one prototypical account he described shocking an exhausted sleep deprived soldier until the man who had been rendered mute by battlefield experience eventually talked. When the paralysis then moved down to the soldier's arm, Yealland applied strong electric shocks to the arm instead of the larynx. At the end of the grueling ordeal, the patient allegedly thanked Yealland for his help (p. 15).

Dubious today, Yealland's methods were considered acceptable medical practice in his time. Moreover, if one takes Yealland's word for it, his work was effective. Inducing current may have induced neuroplastic connectivity as large currents shot carelessly through patients' neurocircuitry (Kandel, 2007). Herman (1997) characterized her reading of Yealland's (1918) book of case studies as "a treatment strategy based on shaming, threats, and punishment." (p. 21). Freud (1919a/1956) also strongly criticized Yealland's methods, writing that the method began in Germany where deaths occurred both during the treatments and as a result of suicide after electric treatments.

Freud's view about Yealland's methods rapidly became the majority view among physicians after the war. Among the allies, medical doctors stopped using faradic treatments for traumatic stress/war neuroses in World War II (Tatu, Bogousslavsky, Moulin, & Chopard, 2010). However, Germany still used the method aversively, treating hysterical war neurosis as a form of malingering (Kloocke, Schmiedebach, & Priebe, 2005).

Yealland's approach to his patients epitomized hierarchical shame-based treatments, which tend to see malingering and factitious disorders where they don't exist. After World War I, a diagnosis of shell shock entitled a soldier to both treatment and disability payments; however, a diagnosis of neurasthenia left the same soldier without treatment or compensation for loss. Also, if a military psychiatrist determined that an underlying mental weakness substantially contributed to the development of the soldier's psychological condition, compensation would also be denied (Jones & Wessely, 2005; Myers, 1915, pp. 316-320; van der Hart & Brown, 1992; van der Kolk, 2014, p. 185).

Between the Wars (*circa* 1918-1939): Cannon, Pavlov & Selye

Today, trauma therapists treating clients with Complex PTSD incorporate the works of Cannon, Pavlov, and Selye into both their formulations of their clients' condition and the interventions they employ (Aldwin, 2007; Anda et al., 2006; Horowitz, 1974, 1976; Scaer, 2005, 2007; and, Selye, 1946, 1956, 1973, 1974).

Walter B. Cannon (b. 1871, d. 1945): Fight, flight, freeze & homeostasis. As early as 1859-60, Bernard (1957/1927) spoke of "an internal organic environment" which included but was not limited to "circulating liquids, the blood serum and intra-organic fluids…" (p. 64). Homeostatically speaking, the human body compares to a space suit where the internal "organic environment becomes specialized and more and more isolated, as it were, from the surrounding environment" (Bernard, 1957/1927, p. 64). Cannon (1939) credited his theory of homeostasis to the pioneering thought of Bernard who first introduced the concept of the "'milieu interieur'" [sic] which is the condition of free and independent life" (p. 38, quoting Bernard, 1885, p. 104). Bernard (1885) defined the phenomenon of complex animal life as one where the animal is able to maintain its internal milieu, even as the outside environment changes (p. 104).

Cannon (1939) conducted animal experiments to empirically demonstrate homeostatic processes maintaining water, salt, calcium, protein, fat, sugar, oxygen, ph, and body temperature (Virtanen, 1960, p. 86). The importance of this underlying work to Kris' case—with all her somatic and psychosomatic issues—would not have been recognized until recently, as researchers and clinicians have sought to understand and help their clients suffering stress-related symptomatology (Aldwin, 2007, Everly & Lating, 2013; Mate, 2003; Sarno, 2007).

Cannon (1939) wrote about how the guiding principles informing the evolutionary engineering of the body favor survival and security over economy and efficiency. Redundancy abounds and large margins of safety are built into the systems of the body. For example, although the liver is perhaps the busiest and most important organ in the body, ¾ of the liver can be removed without adverse effect (p. 238). Similar statements apply to the kidneys, lungs, and even the brain (Ibid).

Homeostasis and margins of safety can be used to understand how clients seem to plod along in life, surviving one crisis after another. Their social, biological, and psychological homeostatic systems operate on the outer margins of homeostatic survival. A major goal of therapy can be viewed as an effort to assist the client in restoring a greater window of homeostatic biopsychosocial adaptive function. This was an overarching conceptualization I had with Kris, owed in part to Cannon's work between the two World Wars.

Cannon's research contributions to traumatology include both the concept of homeostasis (1939) and fight-or-flight (Cannon, 1914). He came to understand fight-or-flight reactions to stress using animal studies where pain, fear, and rage all impacted the nervous system through the secretion of hormones from the adrenal glands. He interpreted this stress response as a reflex with evolutionary adaptive function of "preserving the welfare of the organism or in safeguarding it against injury" (p. 361), giving explicit credit to Darwin (1872/1913) who had observed the concurrence of "a reflex action" among animals when frightened or angry (pp. 101), and McDougall (1910) who attributed emotions to evolutionarily ingrained preservative instincts, e.g., fear and "the instinct to flee" (p. 49).

Reflecting upon the results of his laboratory experiments with adrenal secretion in the face of pain, fear, and rage, Cannon (1914) noted that biological changes such as the release of sugar from the liver into the bloodstream, the shifting of blood flow from the alimentary tract to the lungs, heart, limbs and central nervous system, and increased cardiac vigor all happen in less than 16 seconds (p. 362). The release of sugar into the bloodstream makes it directly available for all muscular activity which might be "involved in flight or conflict or struggle to be free" (p. 366). Moreover, the release of adrenalin into the bloodstream heightens muscular reactivity to nervous discharge. This means that fatigued muscles are readied for action by the presence of adrenalin in the bloodstream nourishing them (p. 367). Furthermore, "the spleen, the kidneys and the intestines – suffer a considerable diminution of volume [of blood]" when adrenalin is present, and "the limbs into which the blood is forced from the splanchnic region actually increase in size" (p. 370). Finally, it has also been observed that adrenalin has a vasodilator effect on the arteries of the heart, and that adrenalin has no limiting effect at all on blood supplying the brain or the lungs, leading to the conclusion that in times of excitement, when the adrenal glands discharge, "the 'tripod of life'—the heart, lungs, and brain (as well as the skeletal muscles)—are abundantly supplied with food taken from organs of less importance in critical moments" (p. 371).

Ivan Pavlov (b. 1849, d. 1939): Fear conditioning and trauma. Pavlov (1927) lent experimental support to Freud and Breuer's etiology of traumatic neuroses and hysteria as parasites encapsulated in the web of memory/mental associations (neural networks) (Freud & Breuer, 1895/1937, p. 220). He did so by experimentally demonstrating how trauma induced physiological change by way of conditioned reflex and the interplay of temperament (defined as a default baseline electrical activation of the nervous system) and intense stress (Pavlov, 1927, pp. 286-289; See also van der Kolk, 1994, p. 254).

In his research, Pavlov (1927) observed that "when the natural reactions are inhibited" a "profound and prolonged loss of balance in nervous and psychic activity" ensues (p. 397). Thus, a clash of excitatory and inhibitory processes appeared to produce trauma symptomotalogy. As a very young child, Kris had no power or ability to stop or mitigate the numerous bouts of extreme IPV by her father upon her mother as they occurred—a quintessential clash of excitatory and inhibitory processes.

Contemporary clinicians and writers have commented on this etiological aspect of trauma. Terr (1990) who studied 26 children abducted from school in a school bus and then buried alive for two days in 1976 in Chowchilla, California, debunked the idea that children are resilient to traumatic stress. She found that "feeling helpless" during a traumatic event significantly contributes to the likelihood of developing PTSD (p. 24). A four-year follow-up study corroborated this observation (Terr, 1983). Levine's (1997, 2010, 2014) "Somatic Experiencing" model for the treatment of traumatized patients pivots on this phenomena of paralysis in the overwhelming force of trauma. After resourcing the client's emotional reactivity to the trauma, imagery techniques are used to access this assumed key aspect of traumatic memory and change its meaning. This technique builds on Freud and Breuer's (1895/1937) formula of tracing the trauma back to "the *statum nascendi* and then thoroughly" talking it out; when re-experienced with an affective force akin to the trauma itself, the symptoms "vanish forever…" (pp. 3-4).

I discussed this concept several times with Kris. Early in treatment she strongly resisted the idea that she was subjected to abuse or neglect as a child—she was quite idealizing about her mother and just as derogating about her father. Over time, however, her defenses relaxed and she began to accept her childhood history more realistically. This movement coincided with a marked increase in her ability to regulate her emotions. Ogden et al. (2006) discussed helping the client "complete failed defensive actions" and experience "acts of triumph" (Ogden, Pain, & Minton, 2006, p. 246 quoting Janet, 1919, 1919a/1925). Recently, I felt that Kris had experienced an act of triumph as she congratulated herself on walking more than 2 miles a day for the previous two weeks. Given her history of sitting on her couch watching television for days on end, that was definitely a triumph for her.

Fear conditioning and memory reconsolidation. The ongoing physiological disruption associated with PTSD has recently been characterized as a failure of the physiological processes to restore homeostasis after the traumatic event. In this regard restoration of that homeostasis involves both resetting the baseline neurophysiological stress response system and processing traumatic memory stored in the Amygdala by activating Hippocampal contextualizing memory processes (Yehuda & LeDoux, 2006):

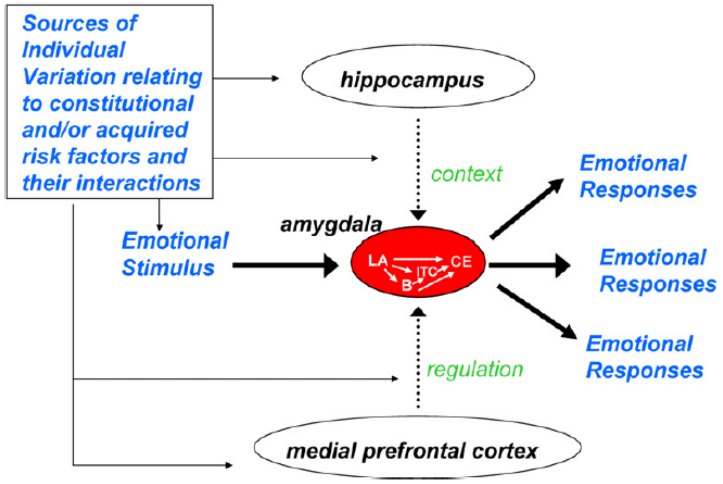


Figure 1. The Amygdala's Ability to Control Fear Responses to Threatening Stimuli Is Regulated by the Hippocampus and Medial Prefrontal Cortex
The hippocampus adds contextual regulation, allowing you to distinguish the difference in threat level posed by a snake in the woods versus in a zoo. The medial prefrontal cortex regulates the degree to which the amygdala expresses fear responses, including the regulation that occurs during extinction of fear. Alterations in information processing by these three areas might account for symptoms in anxiety disorders. However, possibly of greater relevance are the sources of individual variation, either constitutional or environmental, that can affect one of these target areas and lead to different phenotypes with respect to fear-related behavior or biological responses.

Figure 2.23. Medial Prefrontal Cortex (mPFC), Amygdala and Hippocampus in the Restoration of Homeostasis After Being Traumatized. Adapted from Yehuda, R., & LeDoux, J. (2007). Response variation following trauma: A translational neuroscience approach to understanding PTSD. *Neuron*, *56*, 19–32. doi:10.1016/j.neuron.2007.09.006, p. 21.

Bouton, Winterbauer, and Todd (2012) emphasized that extinction models of behavior change based upon Medial Prefrontal Cortex (mPFC) inhibition of Amygdala circuits (the grist of CBT) result in relapse with minor environmental changes to the conditions of extinction. Deviations from the conditions of extinction are highly probable in the flux of normal life with all its potential triggers. In fact this is major problem with trained animals. As long as strict adherence to the protocols of classical-Pavlovian conditioning are observed during shows and other interactions with the animals, animal behavior remains predictably as trained. However, if other variables outside the range of training enter the conditions of human-wild-animal-interactions, the result involves a relapse of the animal to its evolutionarily biased behavior. Hence, the numerous deaths at Seaworld (Oteyza & Cowperthwaite, 2013) and more recently in the 2003 Siegfried and Roy tragedy in Las Vegas where a White Tiger bit into Roy Horn's neck ending Horn's performing career (Lacey-Bordeaux & Smith, 2014, March 26).

In contrast, Ecker and Toomey (2008) have advocated the use of juxtaposition while reactivating the underlying traumatic neurocircuitry associated with trauma symptoms. Emotionally connecting with such material renders memory encoding synapses labile (subject to change). The patient then experientially and verbally connects with the coherence of the trauma related behavior or symptom in question by articulating its true purpose in a dichotomous-juxtapositional if-then statement that promotes a transformational new learning along with associated new neurocircuitry. This new circuitry/learning is lasting because a true extinction has taken place and the old circuitry has lost its ontological relevance to the patient's supra-ordinate system of meaning.

In my work with Kris, a breakthrough took place using this method. Her neuroticism (extreme negativity) was identified by me to her as a symptom serving a purpose. I then had her experientially access what bad thing would happen if she wasn't so down on herself. The answer was that her secret would be revealed—the secret mentioned above about her first child which Kris held to herself for more than three decades. When she revealed this presumably pathogenic secret to me, there was a decided lift in her neuroticism and she began making progress in treatment.

Hans Selye (b. 1907, d. 1982) & the concept of stress. Selye (1936) recounted his experimental findings regarding stress upon animals. He found that, regardless of the stressor itself—which might be temperature, chemical, electrical, or other—the stress response was essentially the same: "a typical syndrome appear[ed], the symptoms of which [were] independent of the nature of the damaging agent …" (p. 32). Stress, according to Selye, is therefore defined as a homeostatic physiological response to the presence of an agent or event.

Selye (1946) developed a tri-partite model for the effects of stressors upon the human body. He conceived of the stress response as an "alarm reaction" which "prominent[ly]" employed the endocrine system in homeostatic resistance to damaging stimuli (p. 118). His years of animal research demonstrated profound “endocrine reactions” associated with chronic/“long continued exposure” to stressors/triggering stimuli. These reactions were “adaptive,” in that they “usually endow the body with a great deal of resistance” to whatever triggering stimulus threatens homeostasis (Ibid).

Selye’s tri-partite system explained the etiology of psychosomatic disease. He conceptualized psychosomatic diseases as the end product outcomes of chronic Hypothalamic, Pituitary, Adrenal (HPA) Axis alarms, followed by resistance, eventually leading to end organ exhaustion. The alarm stage involves an endocrinological homeostatic response to a sudden shock threatening survival in some way. The resistance stage involves the adaptive homeostatic processes neutralizing the threat. However, those adaptive changes utilize what Selye (1946) called “adaptation energy” which eventually fails by reason of exhaustion. He wrote, “if exposure to abnormal conditions continues adaptation wears out” and “lesions characteristic of the alarm reactions (involution of the lymphatic structures, adrenal enlargement, gastrointestinal ulcers) reappear and the stage of exhaustion develops during which further resistance becomes impossible” (Selye, 1946, p. 119). This, then, became Selye’s (1946) psychosomatic “concept that many of the most common maladies of man are ‘diseases of adaptation,’ that is to say, the by-products of abnormal adaptive reactions to stress[ors]” (p. 131).

Selye’s research into the General Adaptation Syndrome of stress (GAS) spanned his scientific career (Rosch, 2013; Selye, 1946, 1956, 1973, 1974). Although Selye’s model has been superceded by newer, more accurate theories describing the psychosomatic disease process, its significance lay in the research it engendered. Every physiologist researching the issue began with Selye’s General Adaptation Syndrome of

Stress (GAS) (See Everly & Lating, 2013, pp. 53-66 for 7 predominant models of psychosomatic etiological disease processes in today's literature).

A major concept in my treatment of Kris involved somatization of affect (which I will discuss in Part IV of this paper) and a reduced capacity to cope. Regarding her global impairment of capacity to cope, her early traumas resulted in a shutting down of flexible attention and emotional regulatory capacity, which compromised her ability as an adult to engage in purposeful, long range, goal-directed activity. Selye's (1946) concept of exhaustion carries some explanatory power here, too. I discussed with Kris that her "adaptation energy" had been used up in resisting intrusive traumatic content over the years. As Selye (1946) wrote, "Even a fully inured organism cannot indefinitely maintain its adaptation when continuously exposed to a great amount of stress" and, eventually, the traumatized person reaches a "stage of exhaustion" (pp. 134-135). This idea resonated with her.

Kris truly felt a bone deep exhaustion about life in general when treatment began. This exhaustion persisted for about a year before it began to lift. In our sessions, I recognized and affirmed this exhaustion. Being seen and accepted in this regard was important because, like many in her position, she hated herself for not being able to muster up emotional energy to do the things she would have liked to do; and being affirmed in that reality brought her some comfort and psychological relief.

World War II: Screening Men for War and the Beginnings of a PTSD Nosology

Attempting to learn from Britain's World War I experience, the United States tried minimizing psychiatric casualties in World War II by screening recruits for mental weakness (Pols & Oak, 2007). The results were mixed but better, overall, than no screening at all (Chamberlin, 2012). It is shocking today that, at the time, homosexuality was associated with mental weakness (Pols & Oak, 2007).

Subsequent research has identified risk factors for PTSD, the most prevalent including lack of social support, life stress after exposure to battlefield stress, and severity of the trauma (Brewin, Andrews, & Valentine, 2000--meta-analysis identifying 14 risk factors). Lack of social support has been identified as the single most important predisposing factor to developing PTSD and other trauma-related psychological disorders. This finding emphasizes the importance of *esprit de corps* among fighting units, and harmonizes with attachment and child abuse literature linking PTSD vulnerability to insecure and disorganized attachment and childhood maltreatment (Perry et al., 1995; Anderson & Alexander, 1996; Brewin, Andrews, & Valentine, 2000; Allanson & Astbury, 2001; O'Connor & Elklit, 2008).

During World War II a sharp distinction between two types of psychiatric patients persisted: those with accompanying physical injuries were deemed "good" soldiers, and psychiatric patients without physical injuries were suspected cowards or malingerers (Chamberlin, 2012). Whether a soldier received a disability award or not turned upon whether he or she had suffered a combat related neurological physical injury. Mere war neuroses were considered a form of malingering and were not compensated (Eghigian, 2014, Hyams, Wignall, & Roswell, 1996). Joseph Heller (1961) captured the confusion between the reality of battlefield psychiatry, itself, and public policy as it related to issues of diagnosis, treatment, disability, and compensation in his satirical novel, *Catch-22* (Collins, 2008, p. 329).

The beginnings of a PTSD nosology. Kardiner (1941) detailed symptoms he observed while treating men presenting with shell shock in World War I, and presenting with operational or combat fatigue/war neuroses in World War II. Van der Kolk (2002) and Horowitz (1974) both attributed the DSM-III's symptom constellation for PTSD to Kardiner. Kardiner (1941) described common features of war neuroses to include: 1. A fixation on the trauma (pp. 76-77, 93); 2. Irritability (p. 95); 3. Aggression and violence (p. 97); and, 4. Lassitude about work and the normal pleasure of life (p. 98).

Combat fatigue in World War II.

Through the course of World War II, Grinker and Spiegel (1943, 1945) and Kardiner and Spiegel (1947) added to the growing body of trauma literature on the conceptualization and treatment of traumatic stress. One of the most notable advances included an incipient integration of between-war basic research on stress and the body by Cannon, Selye, and Pavlov into their conceptualization and treatment of soldiers suffering from operational fatigue (Grinker, & Berezin, 1954).

Treatment during World War II. Generally speaking treatment in World War II largely involved giving men rest, returning them to their units as soon as possible and appealing to their sense of loyalty to their units. As put by Grinker and Spiegel (1945) "men can withstand more stress than they think they can. Under inspired leadership or through sheer necessity they are able to fortify their ego defenses against anxiety and fatigue, and by tapping their ultimate reserves hold themselves intact for unbelievable lengths of time" (p. 151). Like Grinker and Spiegel with their patients, I too marveled at Kris' ability to soldier on in her condition.

Treatments largely mirrored those used during World War I with shell shock patients although faradic treatments had been abandoned and sodium amytal was used in place of hypnosis to facilitate abreaction. Grinker and Spiegel (1945) credited the growth of psychosomatic medicine in World War II to the unique stressors of war where "men were exposed to a natural laboratory of extreme stress akin to that of Cannon and other scientists'" mice (p. 252; See also Cannon, 1915; Dunbar, 1939; Emerson, 1938; & White, 1935).

Figure 2.24. B-25 Bomber. Unique War Stressors of World War II. Retrieved from http://upload.wikimedia.org/wikipedia/commons/2/22/North_American_Aviation's_B-5_medium_bomber,_Inglewood,_Calif.jpg

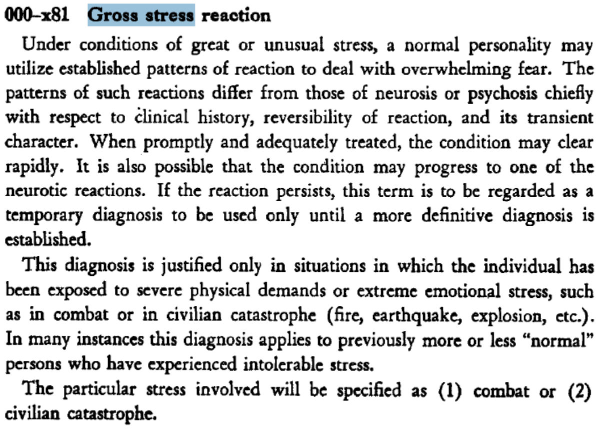
Etiology directs treatment. The method of cure was to reunite dissociated unconscious trauma with conscious awareness. When these "blocks are overcome and the patient becomes conscious of the emotion which heretofore he has only expressed vegetatively, psychosomatic symptoms disappear" (Grinker & Spiegel, 1945, p. 254). My treatment with Kris generally mirrored this formulation of the issue.

Figure 2.25. B-24 Bomber. Unique War Stressors of World War II. Retrieved from http://upload.wikimedia.org/wikipedia/commons/e/e5/DF-ST-88-06744-B-24-Gathering_of_Eagles_convention.JPEG

Between World War II and the Vietnam War (*DSM-I* (1952) and *DSM-II* (1968)

Nosologically, the *Diagnostic and Statistical Manual* (*DSM-I*, 1952) described war-related trauma as a "Transient Situational Personality Disorder" etiologically related to a “Gross Stress Reaction” (p. 40). The *DSM-I* limited gross stress reactions to “(1) combat or (2) civilian catastrophe” (Ibid). The transience of the disorder proved illusory. Twenty years after World War II, Archibald and Tuddenham (1965) wrote, “combat fatigue syndrome which was expected to vanish with the passage of time has proved to be chronic, if not irreversible in certain of its victims” (p. 475).

DSM-I (1952) criteria for identifying Gross Stress Reaction are produced below:



000–x81 Gross stress reaction

Under conditions of great or unusual stress, a normal personality may utilize established patterns of reaction to deal with overwhelming fear. The patterns of such reactions differ from those of neurosis or psychosis chiefly with respect to clinical history, reversibility of reaction, and its transient character. When promptly and adequately treated, the condition may clear rapidly. It is also possible that the condition may progress to one of the neurotic reactions. If the reaction persists, this term is to be regarded as a temporary diagnosis to be used only until a more definitive diagnosis is established.

This diagnosis is justified only in situations in which the individual has been exposed to severe physical demands or extreme emotional stress, such as in combat or in civilian catastrophe (fire, earthquake, explosion, etc.). In many instances this diagnosis applies to previously more or less “normal” persons who have experienced intolerable stress.

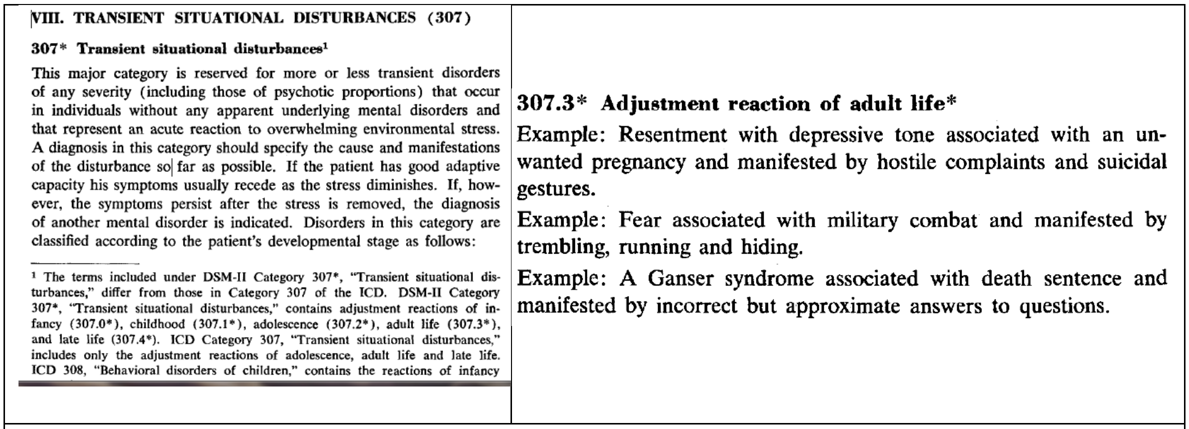
The particular stress involved will be specified as (1) combat or (2) civilian catastrophe.

Figure 2.26. DSM-I’s (1952) *Gross Stress Reaction*. Adapted from American Psychiatric Association. (1952). *Diagnostic and statistical manual: Mental disorders*. Washington, DC: Author, p. 41.

The *DSM-II* (1968) defined war trauma as a situational response to the conditions of war which was rooted in pre-service conditions of personality. Owing to this criterion, war torn soldiers returning home with war related disabilities were denied benefits or, in many cases, treated for other conditions which, 12 years later, would be called PTSD, when the *DSM-III* (1980) was published after the end of the Vietnam War (Pitman, 2013; van der Kolk, 2007).

Sections 307 and 307.3 were the only relevant portions in the *DSM-II* (1968) pertaining to a nosology of PTSD:

307 – Transient Situational Disturbance, *DSM-II* (1968), p. 48	307.3 – Adjustment Reaction of Adult Life, *DSM-II* (1968), p. 49



VIII. TRANSIENT SITUATIONAL DISTURBANCES (307)

307* Transient situational disturbances[1]

This major category is reserved for more or less transient disorders of any severity (including those of psychotic proportions) that occur in individuals without any apparent underlying mental disorders and that represent an acute reaction to overwhelming environmental stress. A diagnosis in this category should specify the cause and manifestations of the disturbance so far as possible. If the patient has good adaptive capacity his symptoms usually recede as the stress diminishes. If, however, the symptoms persist after the stress is removed, the diagnosis of another mental disorder is indicated. Disorders in this category are classified according to the patient's developmental stage as follows:

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[1] The terms included under DSM-II Category 307*, "Transient situational disturbances," differ from those in Category 307 of the ICD. DSM-II Category 307*, "Transient situational disturbances," contains adjustment reactions of infancy (307.0*), childhood (307.1*), adolescence (307.2*), adult life (307.3*), and late life (307.4*). ICD Category 307, "Transient situational disturbances," includes only the adjustment reactions of adolescence, adult life and late life. ICD 308, "Behavioral disorders of children," contains the reactions of infancy

307.3* Adjustment reaction of adult life*

Example: Resentment with depressive tone associated with an unwanted pregnancy and manifested by hostile complaints and suicidal gestures.

Example: Fear associated with military combat and manifested by trembling, running and hiding.

Example: A Ganser syndrome associated with death sentence and manifested by incorrect but approximate answers to questions.

Figure 2.27. DSM-II (1968), *Transient Situational Disturbances / Adjustment Reactions of Adult Life*. Adapted from American Psychiatric Association. (1968). *Diagnostic and statistical manual of mental disorders* (2d ed.). Washington, DC: Author, pp. 48-49.

Vietnam & DSM-III (1980)

Including PTSD in the *DSM-III* (1980) began with a group of activists helping traumatized Vietnam veterans find recognition and effective help (Bloom, 2000). Vietnam veterans at the time received no help from the Veterans Administration (VA) when it came to *delayed* combat stress. The delayed aspect of PTSD cut off both causation and disability benefits. The *DSM-II* (1968) offered no help, either. Returning Vietnam veterans who needed services, and who would have received them under the *DSM-I's* (1952) *gross stress reaction,* were denied help. *DSM-I's* (1952) diagnostic help for veterans of Vietnam "vanished into the interstices" of *DSM-II's* (1968) "adjustment reactions of adult life" (Bloom, 2000, p. 35), which included resentment and depression associated with an unwanted pregnancy, and combat fear "manifested by trembling, running and hiding" (*DSM-II,* 1968, p. 49 as mentioned in Bloom, 2000, pp. 35-36).

Vietnam was the first time in history that "interest in the effects of trauma did not disappear with the end of a war" (Friedman, et al., 2007, p. 4; See also Kardiner & Spiegel, 1947). Undeniable "psychological debilitation" (Bourne, 1975, p. viii) suffered by 30% of all returning Vietnam veterans (U.S. Dept. of Veteran Affairs: http://www.ptsd.va.gov/public/ PTSD-overview/basics/how-common-is-ptsd.asp) garnered sufficient support for it to be included in the *DSM-III* in 1980 (Bourne, 1975, p. ix).

Little communication took place between the PTSD working group and the Dissociation working group before the *DSM-III* (1980) was published. Little modern academic research had yet taken place exploring the relationship between dissociation and trauma—even though the link between the two was early established with Freud, Breuer, and Janet. Accordingly, separate classifications for dissociative disorders and PTSD were published in *DSM-III* in 1980 (Bloom, 2000, p. 37), and this separation has only recently begun to dissolve. For example, the *International Society for the Study of Trauma and Dissociation (ISSTD)* has an entire journal devoted to trauma and dissociation.

Research Informing PTSD in *DSM-III* (1980) & Its Relevance to Complex PTSD

Inclusion of PTSD in the *DSM-III* was not entirely political. PTSD constituted a valid diagnosis with a solid research foundation. Of this research base, Horowitz (1998) wrote:

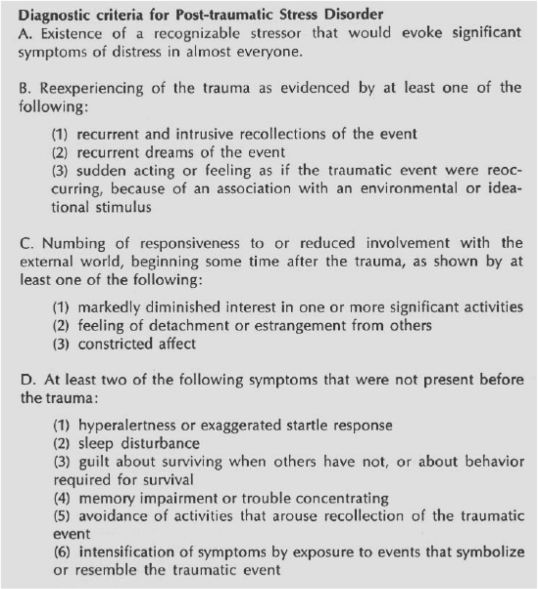
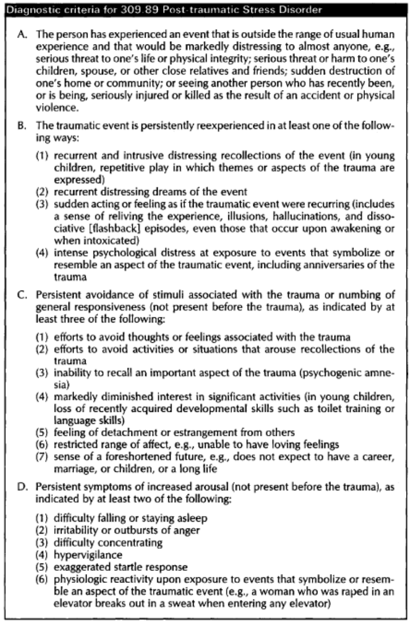
> My colleagues and I studied people after stressful life events. Some subjects had been given sudden bad news about risk factors for future illnesses when they believed they were in a state of good health and had no symptoms (Horowitz, et al., 1980). Other subjects were volunteers who underwent vicarious stressor events through the use of films and videotapes shown in our laboratory setting (Horowitz & Becker, 1972a,b; Horowitz, 1975b; Horowitz, 1997). Additional subjects interviewed had experienced real frights, injuries, or losses. We found

> that all three groups reported increased rates of intrusive and omissive experiences and of related under and overmodulated states. **Signs or symptoms of intrusion and omission came to be recognized as cardinal phenomena in establishing diagnostic criteria for posttraumatic stress disorder** (American Psychiatric Association, 1980; Horowitz, 1977b; Horowitz, Wilner, Kaltreider, & Alvarez, 1980) (p. 19, emphasis added).

The research forming the empirical basis for PTSD in the *DSM-III* (1980) involved patients who experienced “a single non-continuous trauma a year or so before…” (Horowitz, 2011, p. 34). Patients with “cascades of serious events and people with major psychiatric problems such as suicidality, self-cutting, or eating disorders” – like Kris–were excluded from the underlying studies upon which PTSD relied as a valid nosological construct (Horowitz, 2011, p. 34; Horowitz & Wilner, 1976; 1980a; and 1980b). Thus, as originally conceptualized, PTSD specifically excluded most of those patients whom clinicians regularly see in their practice (Horowitz, 2011, p. 35).

The original formulation of PTSD in the *DSM-III* (1980) was, therefore, based upon a relatively recent, short, and non-continuous trauma. PTSD fits well with battlefield trauma but not so well to civilian survivors of developmental or relational trauma. Clinicians and researchers of Complex PTSD have pointed out that “criteria for PTSD neglects key aspects of the disorder, and the older the victim and shorter the trauma, the more likely they will only develop the core symptoms of PTSD. However, the younger the victim and more chronic the trauma (e.g., with child abuse and neglect), the more likely the trauma survivor will develop a “complex PTSD” (Deblinger et al., 1989; Teicher et al., 2002; van der Kolk et al., 1996)” (Wolf , Reinhard, Cozolino, Caldwell, & Asamen, 2009, p. 51).

DSM-III (1980) and *DSM-III-R* (1987) defined PTSD as follows:

DSM-III (1980) PTSD, p. 238	*DSM-III-R* (1987) PTSD, pp. 250-251
	

Diagnostic criteria for Post-traumatic Stress Disorder

A. Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone.

B. Reexperiencing of the trauma as evidenced by at least one of the following:

(1) recurrent and intrusive recollections of the event
(2) recurrent dreams of the event
(3) sudden acting or feeling as if the traumatic event were reoccurring, because of an association with an environmental or ideational stimulus

C. Numbing of responsiveness to or reduced involvement with the external world, beginning some time after the trauma, as shown by at least one of the following:

(1) markedly diminished interest in one or more significant activities
(2) feeling of detachment or estrangement from others
(3) constricted affect

D. At least two of the following symptoms that were not present before the trauma:

(1) hyperalertness or exaggerated startle response
(2) sleep disturbance
(3) guilt about surviving when others have not, or about behavior required for survival
(4) memory impairment or trouble concentrating
(5) avoidance of activities that arouse recollection of the traumatic event
(6) intensification of symptoms by exposure to events that symbolize or resemble the traumatic event

Diagnostic criteria for 309.89 Post-traumatic Stress Disorder

A. The person has experienced an event that is outside the range of usual human experience and that would be markedly distressing to almost anyone, e.g., serious threat to one's life or physical integrity; serious threat or harm to one's children, spouse, or other close relatives and friends; sudden destruction of one's home or community; or seeing another person who has recently been, or is being, seriously injured or killed as the result of an accident or physical violence.

B. The traumatic event is persistently reexperienced in at least one of the following ways:

(1) recurrent and intrusive distressing recollections of the event (in young children, repetitive play in which themes or aspects of the trauma are expressed)
(2) recurrent distressing dreams of the event
(3) sudden acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative [flashback] episodes, even those that occur upon awakening or when intoxicated)
(4) intense psychological distress at exposure to events that symbolize or resemble an aspect of the traumatic event, including anniversaries of the trauma

C. Persistent avoidance of stimuli associated with the trauma or numbing of general responsiveness (not present before the trauma), as indicated by at least three of the following:

(1) efforts to avoid thoughts or feelings associated with the trauma
(2) efforts to avoid activities or situations that arouse recollections of the trauma
(3) inability to recall an important aspect of the trauma (psychogenic amnesia)
(4) markedly diminished interest in significant activities (in young children, loss of recently acquired developmental skills such as toilet training or language skills)
(5) feeling of detachment or estrangement from others
(6) restricted range of affect, e.g., unable to have loving feelings
(7) sense of a foreshortened future, e.g., does not expect to have a career, marriage, or children, or a long life

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by at least two of the following:

(1) difficulty falling or staying asleep
(2) irritability or outbursts of anger
(3) difficulty concentrating
(4) hypervigilance
(5) exaggerated startle response
(6) physiologic reactivity upon exposure to events that symbolize or resemble an aspect of the traumatic event (e.g., a woman who was raped in an elevator breaks out in a sweat when entering any elevator)

Figure 2.28. DSM-III (1980) and DSM-III-R (1987) regarding PTSD. Adapted from American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3d ed.). Washington, DC: Author, p. 238 and American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author, pp. 250-251.

The *DSM-III* (1980), in general, marked a milestone in the history of treating mental disorders in general because it "established the first standardized, empirically based listing of psychiatric disorders" and has become the "'Bible' of psychiatry—the single, authoritative arbiter of legitimate diagnoses" (Wylie, 2010). Interestingly, clinical trials and field studies which were to become so important to future editions of the *DSM* were not conducted with the *DSM-III* (1980) or the *DSM-III-R* (1987) (Ibid).

The Phasic Nature of the Human Stress Response. PTSD and human stress reactions were observed to follow a phasic pattern of intrusion/repetition, followed by re-experiencing and numbing/avoidance, followed by hypervigilance. These features were included in the symptom criteria for PTSD in the *DSM-III*'s (1980) definition (Horowitz, 1972, 1975b, 2011). These phasic phenomena underlie various forensic psychological concepts such as Rape Trauma Syndrome (Burgess, 1983; Burgess & Holstrom, 1974); Child Abuse Accommodation Syndrome (Summit, 1983; Kempe, Silverman, Steele, Droegemueller, & Silver, 1962); and Battered Woman Syndrome, (Walker & Lenore, 2009—originally published in 1979 and 1984). Lifton (1967/1991) in his study of *Survivors of Hiroshima* and Terr (1991) in her study of the *Chowchilla Children abductees* also observed phasic phenomena in the experience of their traumatized subjects.

Freud's (1920/1961) definition of trauma as *powerful external excitations breaking through the protective shield* provides a theoretical understanding of phasic responses to trauma (pp. 29-30; See also Brewin & Holmes, 2003, pp. 344, 346). Freud's model incorporates the first law of thermodynamics—namely, that energy can neither be created or destroyed, but only altered in form (Cengel, 2008, p. 4). Horowitz and others utilize this basic understanding of the conservation of energy to describe the psychological phases observed in the human response to trauma (Horowitz, 2011, p. 13).

Intrusion phases of PTSD break through the protective shield, whereas the numbing/avoidance phase involves a shoring up of defenses and control processes against further breach. Finally, hypervigilance involves the development of a wary state of mind created in response to intrusive and traumatic images (Horowitz, 1976, 2011). Such symptoms proved debilitating for Kris. During her divorce, her ex-husband triggered full-blown HPA axis stress responses and traumatic reminders of her past, both as related to her father's treatment of her mother during her childhood and other traumatic events in her adult life including a year of having CPS in her life when her children were little.

Human stress response, states of mind, affect regulation & personal schemas. In 1985, a 10-year MacArthur Foundation grant for the study of Conscious and Unconscious Mental Processes began at the University of California at San Francisco (Bulletin, 1985, p. 100; Horowitz, 1991, 1998, 2011). This grant enabled research scientists to collaborate and develop basic research addressing the issue of how "unconscious organizing processes in the mind affect cognitive thought" (Ibid, quoting Horowitz). Relevant to treating Complex PTSD, this project helped develop three concepts: 1. States of Mind (Horowitz, 1991, p. 1, 1998); 2. Affect regulation (Horowitz, 1991, p. ix, 1998); and, 3. Personal Schemas (Horowitz, 1991, p. 1).

States of mind. Awareness of one's state of mind provides a cognitive foundation for gaining insight into the psychodynamics informing that state of mind. This awareness provides metacognitive mental space to gain insight. Horowitz' method involved elaborating upon the client's subjective appraisal of his or her current state of mind and then using that appraisal to identify a probable psychodynamic behind the state of mind. Such insight into one's state of mind regarding their PTSD promotes mastery (Horowitz, 1998, p. 26).

Awareness/insight distinguishes problematic compromise states of mind and quasi-adaptive states of mind. Problematic compromise states of mind involve employing undermodulated, ineffective strategies--such as exploding in anger at one's child for loud play, when it is the noise associated with the child's play that has triggered implicit war-related imagery and emotion. Awareness of this process facilitates a more quasiadaptive state of mind. Treatment for the intrusive imagery, on the other hand, can lead to a desired, well-modulated state of equilibrium (Ibid).

Affect regulation & control processes. Horowitz (1998) was only one of the first to identify affect dysregulation as an important focal point of treatment. His conceptualization viewed regulation of affect as an expansion of self-awareness or insight on many levels.

Expanding awareness involves an active integration of hitherto unconscious processes of experience (Horowitz, 1998, pp. 37-38). Shapiro (2007, 2011) wrote that until traumatic memory has been integrated or processed it affects perception of reality (pp. 192-193). Adaptive Information Processing (AIP) occupies a fundamental theoretical concept informing Eye Movement Desensitization Reprocessing (EMDR) which relates to what Horowitz wrote about awareness and occupied an important mode of intervention in Kris' treatment.

Shapiro's (2011) concept of Adaptive Information Processing (AIP) builds upon both Horowitz (1998) and Janet (1901, 1907/1921). According to Shapiro, EMDR works by promoting the "assimilation of the new information [adaptive] into extant [traumatic] memory structures" (Shapiro, 2011, p. 193). Wachtel (2002) recognized the connection between EMDR and Janet's formulation of traumatic memory, as a return to the 'roots' of psychoanalysis (p. 125). Kris and I used EMDR and other EMDR-based interventions to work through her states of mind, her dissociated traumatic memories, thereby linking them to adaptive networks of learning and memory. Over time, and with the use of Brainspotting and then the Comprehensive Resource Model these links produced greater emotional regulation and cognitive control for Kris with other consequential benefits including a greater capacity to focus and engage in intentional, goal directed activities.

Personal schemas. According to Horowitz (1989) personal schemas involve a supraordinate composite of other schemas composed of "complex sets of stored information and associational linkages" (p. 39). He illustrated this concept as follows:

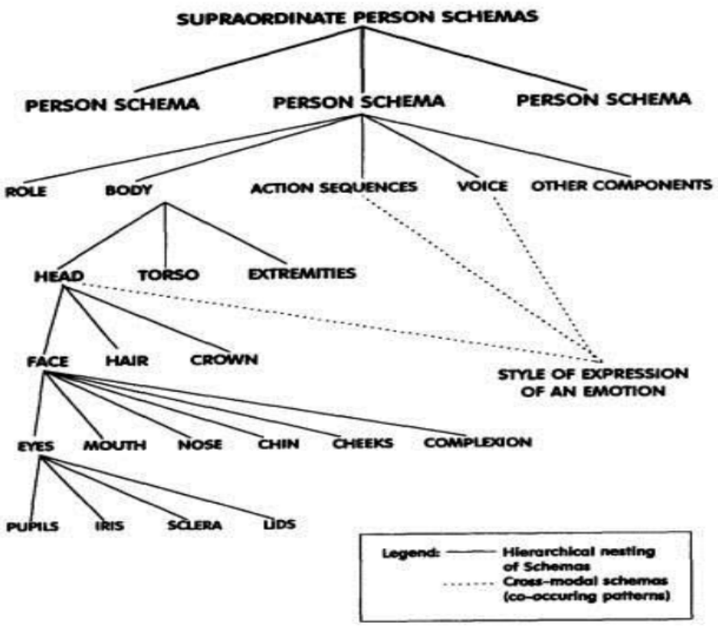


FIGURE 3.2
SCHEMATIC HIERARCHIES

Figure 2.29. Schemas According the Horowitz. Adapted from Horowitz, M. J. (1998). *Cognitive psychodynamics: From conflict to character*. New York: John Wiley & Sons Inc., p. 42.

Personal schemas originally develop adaptively. Kris' unique personal schema represented her adaptation to the experiences of her life. Birney and Sternberg (2011) wrote "as individuals organize their behavior and adapt to the environment, certain psychological structures result" (p. 356). In this regard schemas emerge as a combined product of innate human intelligence/temperament and experience (Birney & Sternberg, 2011, p. 355).

Piaget understood this intelligence to encompass cognitive, affective, and sensori-motor adaptations (Piaget, 2001), through inherited human tendencies to organize experience toward generalization (Birney & Sternberg, 2011), and to utilize these generalizations to adapt to the environment (Piaget, 2001).

Schemas unchallenged by new information remain in equilibrium. Equilibration (dis-equilibrium) on the other hand takes place when new information/experience challenges an existing schema The capacity to adapt to new information involves the ability to tolerate and work through disequilibrium (Pallini & Barcaccia, 2014; Piaget, 2001).

A child's early relational environment contributes to a working model of self and others as more or less secure. Main, Kaplan, & Cassidy (1985) wrote these internal working models "result in fairly complex and far-reaching systems of attentional and behavioral organization" (p. 76). Ford (2009) wrote in this regard that childhood trauma, such as that suffered by Kris, has far reaching effect upon one's personal schema/internal working model. Instead of having a natural curiosity and sense of adventure toward life and learning, a fear-based survival mentality robs the child (and, later, the adult) of an exploratory, inviting approach toward life (pp. 31-32).

Van der Kolk (2003) similarly commented that childhood trauma results in a heightening of threat perception and physiological dysregulation (p. 293). Perry (2006) too wrote that traumatized children grow up with heightened baseline levels of fear that "kills curiosity and inhibits exploration and learning" (p. 26). Childhood trauma prepotentiates neural evaluatory systems to such an extent that the normal regulatory, executive and reflective circuits fail to adequately perform (Denny, Ochnser, Weber, & Wager, 2014; Dore et al., 2015).

For children, the stress of witnessing family Interpersonal Partner Violence (IPV)/Domestic Violence (DV) should not be confused with normal problems of development, which have the effect of inculcating problem-solving and coping skills (Rogosch, Dackis & Cicchetti, 2011; Shonkoff et al., 2009). Likewise, brief challenges in a context of protective factors, such as positive relationships, do not result in a shift from the learning brain to a survival brain (Ibid). Kris' experience clearly fits this pattern from early in life. Her long-term exposure to her father's disparagement and IPV/DV upon her mother was very damaging. In terms of the Big Five personality traits, such early and continuing experiences in a child's life potentiate the production of neurotic personality traits. In fact, Kris' Big 5 score put her in the 91st percentile for neuroticism (Figure 2.4).

Aber and Allen (1987) conducted a comparative study of the effect of child maltreatment upon learning upon 192 preschool and early school-age children. They found that maltreated children suffered clear deficits in a readiness to learn when compared with controls. Gallagher (2014) also recently reviewed numerous studies correlating childhood stress and trauma to adverse educational performance and behavior, including concentration problems, cognitive problem solving deficits, "hyperactivity, impulsivity, disorganization, aggressiveness, withdrawal, low frustration tolerance, 'mouthiness,' and anger outbursts" (pp. 35-40, quoting Crozier & Barth, 2005).

DSM-IV **(1994) &** ***DSM-IV-TR*** **(2000) & PTSD**

The Women's Movement of the 1970s created an intellectual foundation for numerous studies that have since become mainstream in the American Criminal Justice System (Herman, 1997). Summit (1983) published research on Child Sexual Abuse Accommodation syndrome. Burgess and Holmstrom (1974) published research on rape trauma syndrome and Walker (1979) published research on the battered woman syndrome (Friedman, et al., 2007, p. 4). The research indicated that the women were experiencing virtually the identical responses reported by Vietnam veterans. Thus, "when the revision of the DSM was considered, reactions to all traumatic events were pooled into one category" (Ibid), and field trials were established with a view about whether the stressor criterion A should be changed or dropped (Kilpatrick et al., 1998).

The field trials for the *DSM-IV* (1994) demonstrated that *DSM-III*'s (1980) "outside the range of normal experience" needed to be changed. Traumatic stressors were not outside the range. What made a stressor traumatic was the response to it. Even so, the studies demonstrated that divorces, lost jobs, etc., did not generally cause PTSD symptoms. PTSD symptoms came from major traumatic events such as child abuse, rape, being battered; and the stressor at Criterion A was expanded to encompass such phenomena (Friedman, et al., 2007, p. 5).

Dissociation & PTSD.

The *DSM-IV* (1994) also introduced Acute Stress Disorder (ASD). The Dissociative Disorders Subcommittee working on the *DSM-IV* recommended including Acute Stress Disorder (ASD) because research and clinical experience indicated peritraumatic dissociative symptoms predicted PTSD (Friedman, et al., 2007, p. 6). ASD in the *DSM-IV* (1994) required PTSD symptoms within a month of exposure to the extreme stressor and at least three of the following: "a subjective sense of numbing, detachment, or absence of emotional responsiveness; a reduction in awareness of his or her surroundings; derealization; depersonalization; or dissociative amnesia" (p. 429). Brewin and Holmes (2003) cite seven studies finding that dissociation during or shortly after exposure to trauma strongly predict PTSD. Freud and Janet had observed this in their treatment of hysteria patients almost a century earlier.

Regarding peritraumatic dissociation, van der Kolk (2014) vividly illustrated its effect by writing about a Canadian couple (identified as Stan and Ute by van der Kolk) he treated who had developed PTSD after being trapped in a multiple-car road accident. The following is a side by side comparison of the couple's fMRI results, taken while recalling the accident. Both parties experienced the same extreme stressor; however, Ute, whose scan is on the right in the figure below, also experienced peritraumatic dissociation:

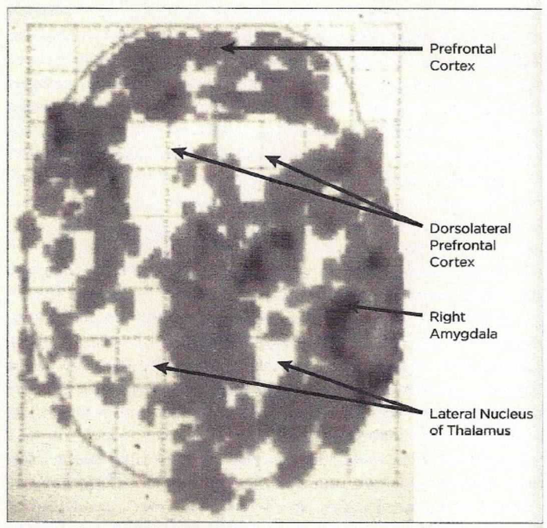
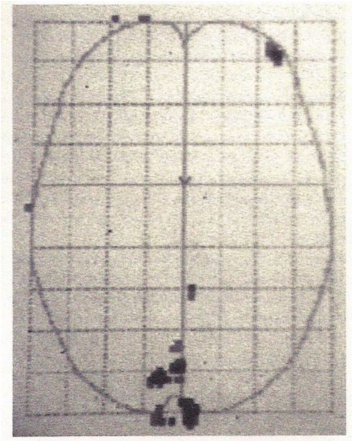
 Prefrontal Cortex Dorsolateral Prefrontal Cortex Right Amygdala Lateral Nucleus of Thalamus **Imaging a flashback with fMRI.** Notice how much more activity appears on the right side than on the left.	 **Blanking out (dissociation) in response to being reminded of past trauma.** In this case almost every area of the brain has decreased activation, interfering with thinking, focus, and orientation.
This was Stan's brain while actively recalling the accident. Note the **right amygdala** demonstrated significant extra metabolic activity. Van der Kolk (2014) called this process ***smoke detector overdrive*** which can result in paranoid ideation where the patient is "chronically scared people hate" him or her. (p. 69) He also explained that the decrease in activity represented by the white spots indicated that the **dorsolateral prefrontal cortex (DLPFC)** (the **"timekeeper"** of the brain) has been deactivated. Stan's ability to distinguish the present from the past was absent during traumatic recall. Van der Kolk (2014) called this "the timekeeper collapse" (p. 69). One further important point is noted in the above fMRI: **"thalamus shut down"** (Ibid). Using van der Kolk's (2014) term, the sensory **"cook"** which usually functions to put the ingredients of sensory input together and relay them to other parts of the brain towards autobiographical learning isn't cooking. This fact accounts for the common experience of PTSD survivors of **"sensory overload"** which often results in maladaptive behavioral attempts to shut it down with drugs and alcohol. Such numbing may solve the problem of sensory overload; however, numbing also cuts the patient off from the normal pleasures of life (pp. 70-71).	Ute's fMRI demonstrated what happens when dissociation takes place. Note there was a global reduction in metabolic activity in her brain when asked to recall the trauma. Crediting Porges (2007, 2009, 2011, 2014), van der Kolk (2014) explained his theory of Ute's stress induced dissociation as follows: "After trauma the world is experience with a different nervous system that has an altered perception of risk and safety" (p. 80).

Figure 2.30. Van der Kolk on Peritraumatic Dissociation. Adapted from van der Kolk, B. (2014). *The body keeps the score: Brain, mind and body in the healing of trauma.* New York: Viking, p. 68 (left) and p. 71 (right) and Lanius, R. A., Hopper, J. W., & Menon, R. S. (2014). Individual differences in a husband and wife who developed PTSD after a motor vehicle accident: A functional MRI case study. *American Journal of Psychiatry*, *160*(4), 667-669 (both).

Regarding these functional Magnetic Resonance Imaging (fMRI) results, van der Kolk (2014) wrote that recovery from such trauma only occurs when the traumadisturbed brain structures regain functionality. Lanius et al. (2014) further explain how endogenous opioids, cannabinoids, neuropeptides, hormones and other neurobiological mechanisms contribute to dissociative phenomena and trauma-induced dysregulation and provide treatment recommendations for restoring regulation.

The global dissociation demonstrated in Ute’s fMRI when recalling the accident is also characteristic of abused and neglected children, implicating Porges’ (2011) poly-vagal homeostatic explanation for the dissociative stress response. Both the trauma victim and the abused child find themselves in a mentally disorganized place of inescapable fear (Hesse & Main, 2000), where dissociation is an adaptive response. Dissociative experiences during child abuse are common (Twaite & Rodriguez-Srednicki, 2004). Note the following dissociative pictures in figures 2.29 and 2.30:

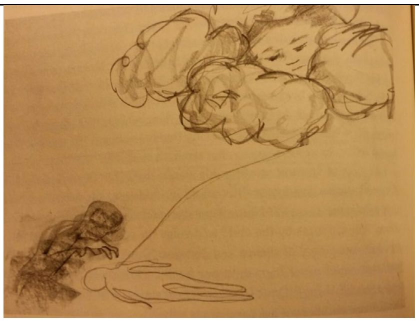


Figure 2.31. Dissociative Drawing. Adapted from van der Kolk, B. (2014). *The body keeps the score: Brain, mind and body in the healing of trauma.* New York: Viking., p. 132.

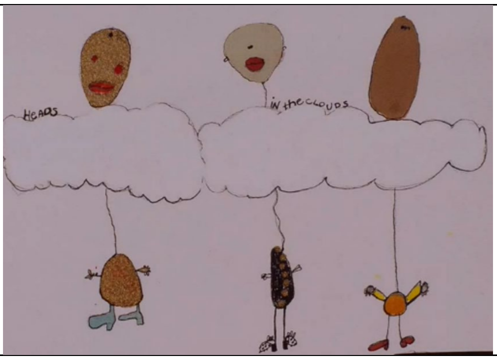


Figure 2.32. Dissociated victims of IPV who hear no evil, speak no evil, and see no evil. Adapted from Herman, J. (2013, May). *Understanding complex trauma and its relation to gender-based violence.* Lecture at the Women’s Justice

Center, Santa Rosa, Ca. Retrieved from http://justicewomen.com/news/lecture-judith-herman-understanding-complex-trauma-and-its-relation-gender-based-violence

In therapy Kris spoke about having witnessed her father jumping on top of her mother as a 6 year-old child, and harboring serious doubts about whether she actually saw it or whether it might have been a dream. This reference to a dream indicates dissociation which is common among children exposed to trauma (Bui et al., 2010; Soir, 2014). It is unlikely that she dreamed what she remembers, as her father went to great lengths throughout her childhood to specifically tell Kris she misunderstood and didn't really see what she thought she saw.

Disorders of Extreme Stress Not Otherwise Specified (DESNOS) & the *DSM-IV* (1994) PTSD Field Trials.

Soon after the publication of *DSM-III* (1980), Boston psychiatrist and trauma expert Bessel van der Kolk recalled a woman coming to see him after she had been beaten up by her boyfriend, saying she was sure she had PTSD. After he had spent some time treating her, he told her she did not have PTSD, but something else. He had learned she cut herself, dissociated, had memory lapses, experienced shifts in personality, felt excessive shame and self-blame, and became extremely upset by very small things. Even though she did show signs of PTSD, her symptoms seemed to suggest something quite different from the PTSD of traumatized vets (Wylie, 2010).

Under van der Kolk's initial leadership a movement began among researchers and clinicians to establish a new diagnosis which was related to PTSD but different. Initially, a main point of contention involved Criterion A of the *DSM-III-R* (1987): "The person has experienced an event that is **outside the range of usual human experience**" (p. 250, emphasis added).

The problem was that Interpersonal Partner Violence (IPV)/Domestic Violence (DV) and childhood physical and sexual abuse were not particularly *outside the range of usual human experience* (Brown, 1995); equally important, the symptom constellation, etiology, and response to treatment demonstrated by these patients differed markedly from straight PTSD patients (Wylie, 2010). It will be remembered that when PTSD was initially included in the DSM-III (1980) that complex etiologies were specifically excluded from consideration in the research informing the diagnosis as originally formulated.

A number of researchers and clinicians including Bessel A. van der Kolk, Judy Herman, Jim Chu, and David Pelcovitz discussed a new diagnosis for the *DSM-IV* with Dr. Robert Spitzer, who was in charge of publication. According to van der Kolk (2014), Dr. Spitzer suggested field trials. These studies indicated a difference between the presentation of stress reactions to combat and other extreme events, and those associated with developmental trauma. Chronic stress associated with child abuse and neglect resulted in a unique constellation of symptoms which could be differentiated from both PTSD and Borderline Personality Disorder (BPD) (Courtois & Ford, 2009; Heller & LaPierre, 2012; van der Kolk, 2005).

Relevant to this discussion, Terr (1991) wrote a theoretical paper dividing trauma-stress conditions of childhood into Type I and Type II childhood traumas (p. 11). Type I traumas involved childhood suffering associated with a “sudden blow”; Type II traumas involved childhood suffering of a longstanding or repeated nature (Ibid). Disorders of Extreme Stress Not Otherwise Specified (DESNOS)/Complex PTSD (Herman, 1992) was rooted in Type II trauma. As outlined in the *DSM-III* (1980) and *DSM-III-R* (1987), PTSD was rooted in Type I trauma (See also Pelcovitz et al., 1997, p. 4).

During the PTSD field trials in 1990 and 1991, two teams of researchers and clinicians--in New York (Pelcovitz, et al., 1997, citing a 1989 paper presented by Spitzer, Kaplan & Pelcovitz to the American Psychiatric Association entitled *Victimization Disorder: A Needed Addition to DSM-IV*) and Boston (Herman & van der Kolk, 1987)--compiled 27 categories of Disorders of Extreme Stress Not Otherwise Specified (DESNOS) symptoms (Van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Herman (1992) reorganized these 27 categories, conceived as "complicated adaptations to severe and prolonged trauma," into the 7 categories depicted below (Van der Kolk et al., 2005, p. 390):

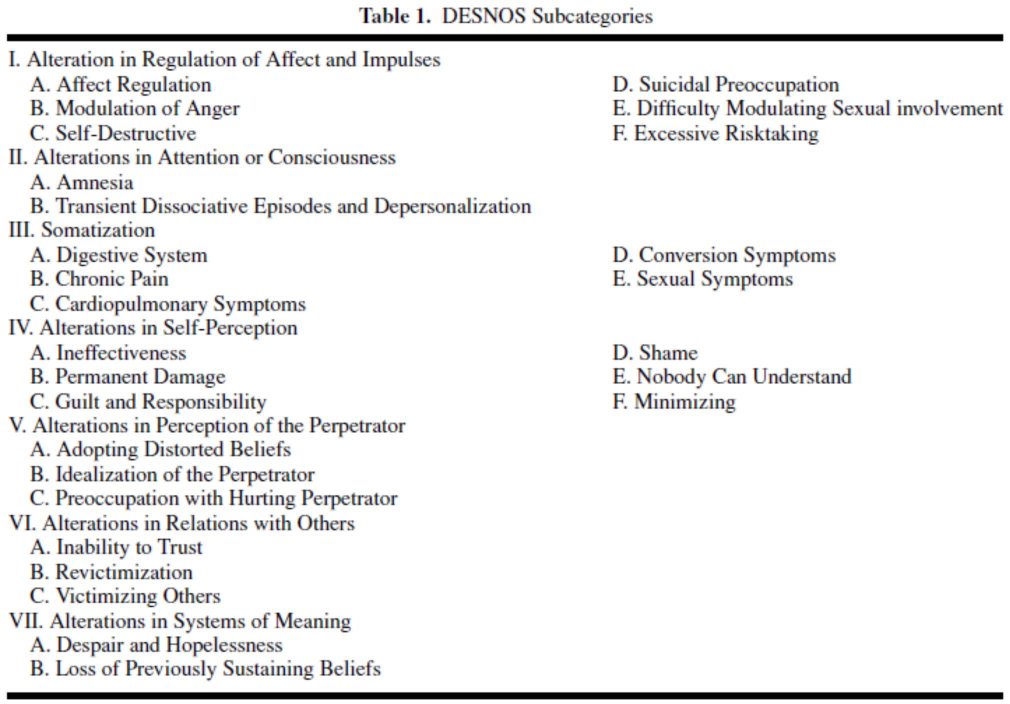


Table 1. DESNOS Subcategories

I. Alteration in Regulation of Affect and Impulses
  A. Affect Regulation
  B. Modulation of Anger
  C. Self-Destructive
  D. Suicidal Preoccupation
  E. Difficulty Modulating Sexual involvement
  F. Excessive Risktaking
II. Alterations in Attention or Consciousness
  A. Amnesia
  B. Transient Dissociative Episodes and Depersonalization
III. Somatization
  A. Digestive System
  B. Chronic Pain
  C. Cardiopulmonary Symptoms
  D. Conversion Symptoms
  E. Sexual Symptoms
IV. Alterations in Self-Perception
  A. Ineffectiveness
  B. Permanent Damage
  C. Guilt and Responsibility
  D. Shame
  E. Nobody Can Understand
  F. Minimizing
V. Alterations in Perception of the Perpetrator
  A. Adopting Distorted Beliefs
  B. Idealization of the Perpetrator
  C. Preoccupation with Hurting Perpetrator
VI. Alterations in Relations with Others
  A. Inability to Trust
  B. Revictimization
  C. Victimizing Others
VII. Alterations in Systems of Meaning
  A. Despair and Hopelessness
  B. Loss of Previously Sustaining Beliefs

Table 2.1. Disorders of Extreme Stress Not Otherwise Specified (DESNOS): Complex PTSD's Antecedent. Adapted from van der Kolk, B. A., Roth, S., Pelcovitz, D., Sunday, S., & Spinazzola, J. (2005). Disorders of extreme stress: The empirical foundation of a complex adaptation to trauma. *Journal of traumatic stress*, *18*(5), 389-399, p. 391. See also Roberts, 2013, p. 12.

The field studies supported including Herman's (1992) criteria as a diagnosis into the *DSM-IV* (1994) (Zlotnick et al. 1996). "The *DSM-IV* PTSD Committee voted 19 to 2 in favor of accepting Disorders of Extreme Stress Not Otherwise Specified (DESNOS) in the" *DSM-IV* (1994) (Wylie, 2010). Data and empirical validation for the diagnosis was compiled (Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997; and van der Kolk et al., 2005).

Also, Pelcovitz, van der Kolk, Roth, Mandel, Kaplan and Resick (1997) developed and validated a Structured Interview for Disorders of Extreme Stress (SIDES). Each of the seven categories outlined at Table 2.1 above were empirically validated as diagnostic criteria except "perception of the perpetrator" which was dropped from Disorders of Extreme Stress Not Otherwise Specified (DESNOS) criteria because it lacked sufficient empirical verification in the Interpersonal Partner Violence (IPV) groups studied (Ibid, p. 12).

The *DSM-IV* (1994) field trials also demonstrated that the younger a person was when exposed to trauma the more likely that person would be to exhibit Disorders of Extreme Stress Not Otherwise Specified (DESNOS) symptomatology (van der Kolk, et al., 2005, pp. 393-394). The verified criteria for the newly proposed diagnosis was and still remains as follows:

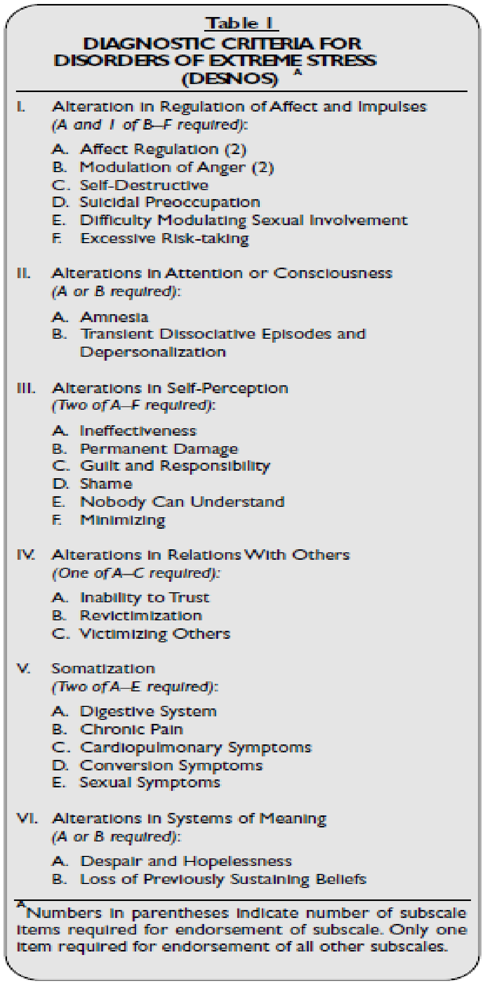


Table I

DIAGNOSTIC CRITERIA FOR DISORDERS OF EXTREME STRESS (DESNOS)[A]

I. Alteration in Regulation of Affect and Impulses
(A and 1 of B–F required):
- A. Affect Regulation (2)
- B. Modulation of Anger (2)
- C. Self-Destructive
- D. Suicidal Preoccupation
- E. Difficulty Modulating Sexual Involvement
- F. Excessive Risk-taking

II. Alterations in Attention or Consciousness
(A or B required):
- A. Amnesia
- B. Transient Dissociative Episodes and Depersonalization

III. Alterations in Self-Perception
(Two of A–F required):
- A. Ineffectiveness
- B. Permanent Damage
- C. Guilt and Responsibility
- D. Shame
- E. Nobody Can Understand
- F. Minimizing

IV. Alterations in Relations With Others
(One of A–C required):
- A. Inability to Trust
- B. Revictimization
- C. Victimizing Others

V. Somatization
(Two of A–E required):
- A. Digestive System
- B. Chronic Pain
- C. Cardiopulmonary Symptoms
- D. Conversion Symptoms
- E. Sexual Symptoms

VI. Alterations in Systems of Meaning
(A or B required):
- A. Despair and Hopelessness
- B. Loss of Previously Sustaining Beliefs

[A] Numbers in parentheses indicate number of subscale items required for endorsement of subscale. Only one item required for endorsement of all other subscales.

Table 2.2. Disorders of Extreme Stress Not Otherwise Specified (DESNOS) Criteria. Adapted from Luxenberg, T., Spinazzola, J., & Van der Kolk, B. A. (2001). Complex trauma and disorders of extreme stress (Disorders of Extreme Stress Not Otherwise Specified (DESNOS)) diagnosis, part one: Assessment. *Directions in Psychiatry*, *21*(25), 373-392, p. 375.

Without consulting any of the numerous clinicians and researchers who performed the field trials for the *DSM-IV* (1994), Disorders of Extreme Stress Not Otherwise Specified (DESNOS)/Complex PTSD was not included as a diagnosis when the *DSM-IV* (1994) was published (van der Kolk, 2014, p. 142; Wylie, 2010). The findings from the field trials were not completely ignored though. They were included in the concluding paragraph for PTSD under associated features:

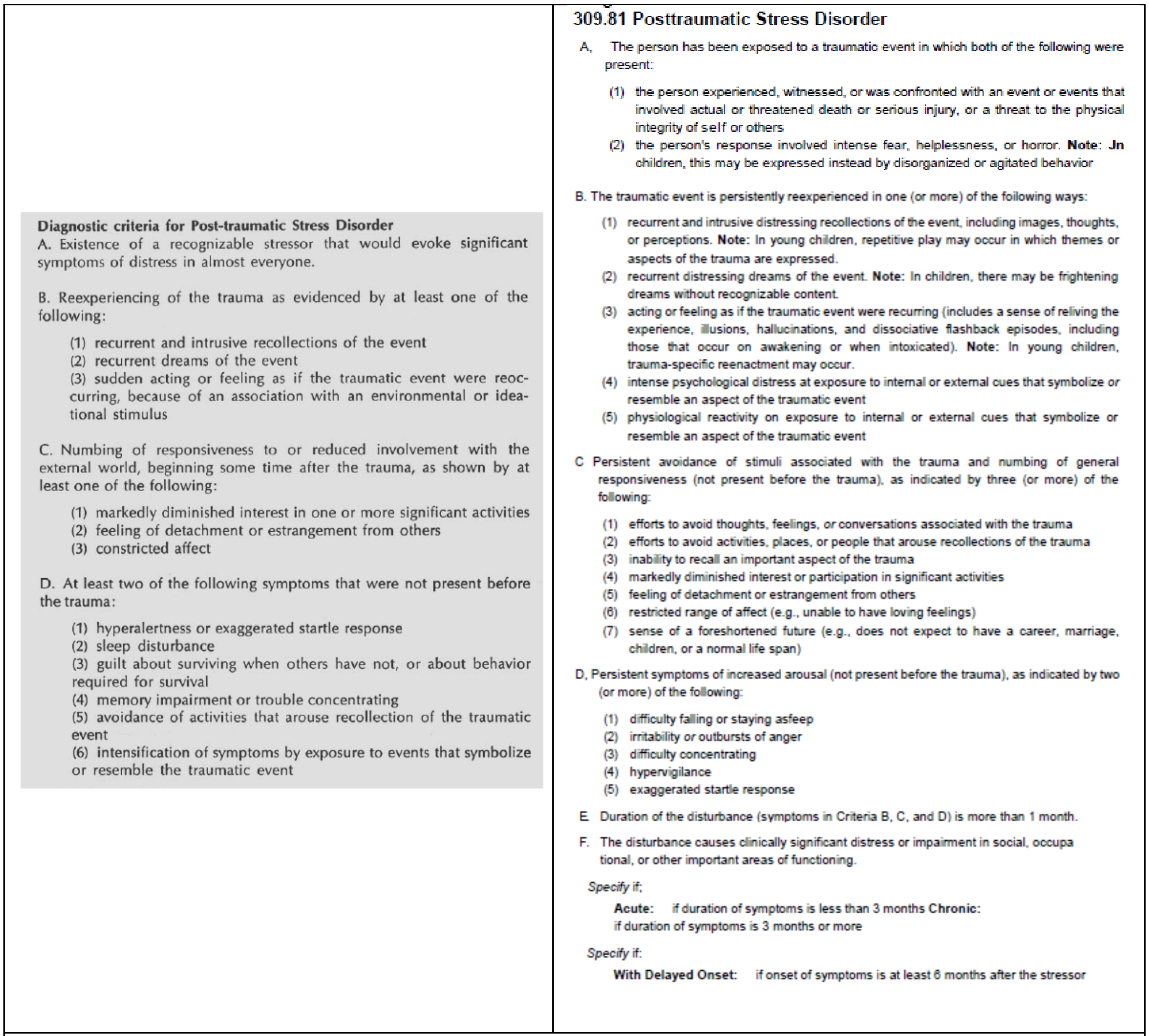
> The following associated constellation of symptoms may occur ***and are more commonly seen in association with an interpersonal stressor*** (e.g., childhood

> sexual or physical abuse, domestic battering, being taken hostage, incarceration as a prisoner of war or in a
> concentration camp, torture): ***impaired affect modulation; self-destructive and impulsive behavior; dissociative symptoms; somatic complaints; feelings of ineffectiveness, shame, despair, or hopelessness; feeling permanently damaged; a loss of previously sustained beliefs***; hostility; social withdrawal; feeling constantly threatened; ***impaired relationships with others***; or a change from the individual's previous personality characteristics (DSM-IV, 1994, p. 425, emphasis added and DSM-IV-TR, 2000, p. 465).

Regarding Kris, her Structured Interview for Disorders of Extreme Stress (SIDES) results indicated elevated scores on all six of the Disorders of Extreme Stress Not Otherwise Specified (DESNOS) scales, confirming her diagnosis of Complex PTSD (Complex PTSD). Each of the results was reviewed with her and she subjectively affirmed the validity of all subscales.

DSM-IV (1994) and *DSM-IV-TR* (2000) defined PTSD as follows:

DSM-IV (1994) PTSD, pp. 428-429	*DSM-IV-TR* (2000) PTSD, pp. 467-468



Diagnostic criteria for Post-traumatic Stress Disorder

A. Existence of a recognizable stressor that would evoke significant symptoms of distress in almost everyone.

B. Reexperiencing of the trauma as evidenced by at least one of the following:

(1) recurrent and intrusive recollections of the event
(2) recurrent dreams of the event
(3) sudden acting or feeling as if the traumatic event were reoccurring, because of an association with an environmental or ideational stimulus

C. Numbing of responsiveness to or reduced involvement with the external world, beginning some time after the trauma, as shown by at least one of the following:

(1) markedly diminished interest in one or more significant activities
(2) feeling of detachment or estrangement from others
(3) constricted affect

D. At least two of the following symptoms that were not present before the trauma:

(1) hyperalertness or exaggerated startle response
(2) sleep disturbance
(3) guilt about surviving when others have not, or about behavior required for survival
(4) memory impairment or trouble concentrating
(5) avoidance of activities that arouse recollection of the traumatic event
(6) intensification of symptoms by exposure to events that symbolize or resemble the traumatic event

309.81 Posttraumatic Stress Disorder

A, The person has been exposed to a traumatic event in which both of the following were present:

(1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
(2) the person's response involved intense fear, helplessness, or horror. **Note: In** children, this may be expressed instead by disorganized or agitated behavior

B. The traumatic event is persistently reexperienced in one (or more) of the following ways:

(1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
(2) recurrent distressing dreams of the event. **Note:** In children, there may be frightening dreams without recognizable content.
(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). **Note:** In young children, trauma-specific reenactment may occur.
(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event
(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

C Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma
(2) efforts to avoid activities, places, or people that arouse recollections of the trauma
(3) inability to recall an important aspect of the trauma
(4) markedly diminished interest or participation in significant activities
(5) feeling of detachment or estrangement from others
(6) restricted range of affect (e.g., unable to have loving feelings)
(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D, Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

(1) difficulty falling or staying asleep
(2) irritability or outbursts of anger
(3) difficulty concentrating
(4) hypervigilance
(5) exaggerated startle response

E Duration of the disturbance (symptoms in Criteria B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if;
Acute: if duration of symptoms is less than 3 months **Chronic:**
if duration of symptoms is 3 months or more

Specify if:
With Delayed Onset: if onset of symptoms is at least 6 months after the stressor

Figure 2.33. DSM-IV (1994) and *DSM-IV* (2000) regarding PTSD. Adapted from American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author, pp. 438-439; and, American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., rev.). Washington, DC: Author, pp. 467-468.

Dose-Response Relationship Between Severity of Exposure to Trauma & the Onset of PTSD.

When *DSM-IV-TR* (2000) was published, two decades of PSTD research had revealed two major findings: 1. There is a dose-response relationship between the severity of trauma and the onset of PTSD (Friedman, Resick, & Keane, T. M. (2007); and, 2. Interpersonal Partner Violence (IPV)/Domestic Violence (DV) was about three times more likely to result in PTSD symptomatology than other traumatic stressors (Kessler et al., 1995).

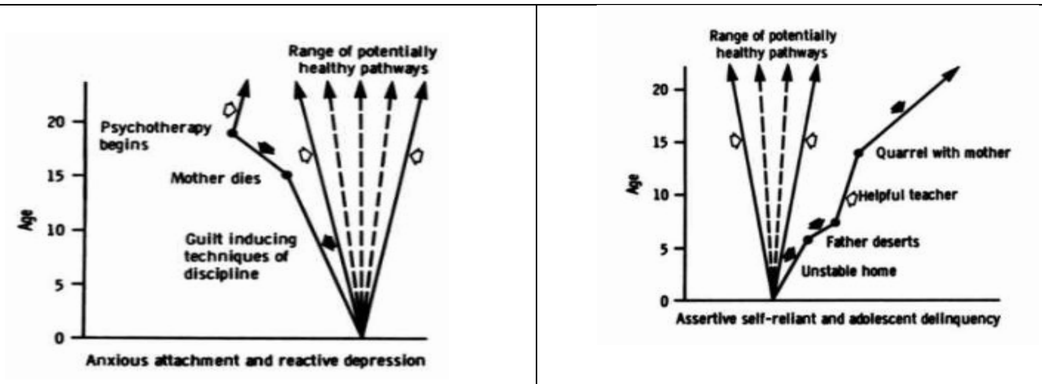
The second research finding regarding the pathogenic effects of Interpersonal Partner Violence (IPV)/Domestic Violence (DV) were of particular relevance to Kris and the diagnostic future of PTSD as it relates to stress-diathesis models of mental health, child abuse, and neglect. Historically, people who developed PTSD were considered congenitally defective or genetically weak from the start. This formulation is now known to be wrong (de Jong et al., 2001; Kessler et al., 1995).

Kessler et al. (1995) used data from the National Comorbidity Study (1990-1992) to determine PTSD prevalence rates and to categorize them according to type of exposure. They found that interpersonal trauma was more likely to produce PTSD symptoms than impersonal trauma. The data also indicated that childhood physical and sexual abuse and neglect did not correlate with PTSD as defined by the *DSM-III-R* (1987). Thus, the second finding regarding the additive nature of interpersonal trauma—65.0% and 45.9% prevalence for male and female rape survivors, respectively, as opposed to 3.6% and 3.8% prevalence for male and female accident survivors pointed to an important area of research – i.e., the impact of interpersonal variables on the development of PTSD, and the question of child abuse and neglect (Kessler et al., 1995).

The Adverse Childhood Experiences (ACE) Studies: A Paradigm Shift in Understanding the Impact of Developmental Trauma

Attachment theory provided a strong empirical foundation for the proposition that childhood experiences clearly impact adult personality and one's ability to adapt and flexibly relate to self, others, and the circumstances of adult life. Bowlby (1988) used the metaphor of one's path in life to describe "range[s] of potentially healthy" expressions.

He also theorized that adverse childhood events could lead a minor outside the boundaries of normative development into unfavorable reactions including depression (internalizing disorders), hostility, and delinquency (externalizing disorders) (pp. 172-173):


Range of potentially healthy pathways
Psychotherapy begins
Mother dies
Guilt inducing techniques of discipline
Age
20
15
10
5
0
Anxious attachment and reactive depression
Range of potentially healthy pathways
Quarrel with mother
Helpful teacher
Father deserts
Unstable home
Age
20
15
10
5
0
Assertive self-reliant and adolescent delinquency

Developmental Pathway Deviating Toward Anxious Attachment and Depression

Developmental Pathway Deviating Toward Hostility and Delinquency

Figure 2.34. Bowlby's Developmental Paths. Adapted from Bowlby, J. (1988). *A secure base: Parent-child attachment and healthy human development.* London, Great Britain: Basic Books, p. 172 (left), p. 173 (right).

Bowlby's ideas in this regard have been empirically tested and replicated (Adams, Sheldon-Keller & West, 1996, internalizing disorders; Felitti et al., 1998; Goodman, Bartlett & Stroh, 2013, externalizing disorders; and, Stovall-McClough & Cloitre, 2006, dissociative disorders). Bowlby (1980) summarized his theory as follows:

> Since the goal of attachment behaviour [sic] is to maintain an affectional bond, any situation that seems to be endangering the bond elicits action designed to preserve it; and the greater the danger of loss appears to be the more intense and varied are the actions elicited to prevent it. In such circumstances all the most powerful forms of attachment behaviour [sic] become activated-clinging, crying and perhaps angry coercion. This is the phase of protest and one of acute physiological stress and emotional distress.

> When these actions are successful the bond is restored, the activities cease and the states of stress and distress are alleviated. When, however, the effort to restore the bond is not successful sooner or later the effort wanes. But usually it does not cease. On the contrary, evidence shows that, at perhaps increasingly long intervals, the effort to restore the bond is renewed: the pangs of grief and perhaps an urge to search are then experienced afresh. This means that the person's attachment behaviour [sic] is remaining constantly primed and that, in conditions still to be defined, it becomes activated anew. **The condition of the organism is then one of chronic stress and is experienced as one of chronic distress**. At intervals, moreover, both stress and distress are likely again to become acute. (Bowlby, 1980, p. 43, emphasis added)

The Adverse Childhood Experiences study began with Kaiser Permanente's *Positive Choice Weight Loss Program*. They used "Supplemented Absolute Fasting" with what appeared to be phenomenal results. The following picture was typical of a successful participant's initial results.

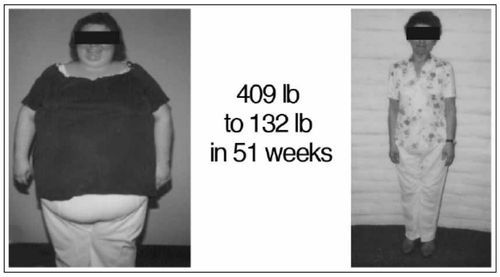


Figure 1. Patient who lost 277 lb in 51 weeks

Figure 2.35. Adverse Childhood Experience (Ace) Study Demonstrative. Adapted from Felitti, V. J., Jakstis, K., Pepper, V., & Ray, A. (2010). Obesity: problem, solution, or both?. *The Permanente Journal*, *14*(1), 24, p. 26.

Hovell et al. (1988) found that, of 400 weight loss patients they studied, only 45% who began the program completed it. Those who completed the program did lose a significant 83.9 % of their excess weight; however, within 30 months of losing the weight 100% of these patients had gained back 59 to 82 % of that weight.

The dual problem of attrition (55%) and relapse in the program led Felliti and his colleagues to study 286 of their patients to figure out why these patients dropped out so much and why they gained all their weight back. They found that Childhood Sexual Abuse (CSA) and household dysfunctionality were rampant in this population (Felitti, Jakstis, Pepper, & Ray, 2010, p. 26, referring to Felitti's 1991 study correlating incest, rape, and molestation to adverse adult health and relationship outcomes, including obesity).

Consistent with Felitti et al.'s (2010) findings, Kris was morbidly obese until about 6 years prior to our therapeutic relationship when she underwent gastric bypass surgery. Unlike so many others, she had maintained the weight reduction. Interestingly, as she began to improve at about a year into therapy, she began eating better and gained weight. This caused her some concern that we discussed. To date she continues to deny any sort of Childhood Sexual Abuse (CSA).

Felitti's results elicited a harsh response from his colleagues at the North American Study for the Association of Obesity in 1990. However, having attended Felitti's presentation, an epidemiologist with the Center for Disease Control (CDC), Robert Anda, began collaborating with Felitti on what would become the Adverse Childhood Experiences Study (ACE study) (van der Kolk, 2014, p. 144).

The Adverse Childhood Experiences (ACE) study found that chronic adult medical diseases were strongly correlated with exposure to adverse childhood experiences. More than that though, the *compulsive* behaviors associated with chronic disease (e.g. overeating, alcohol consumption, drug use, and smoking) served a *counterbalancing* purpose for patients (Felitti, Jakstis, Pepper & Ray, 2010, p. 24). At the time of the initial ACE study in 1998, the relevance and long term consequences of child abuse were largely unknown by the medical community (Felitti et al., 1998, p. 246).

Because the study was conducted by Kaiser Permanente, researchers conducting the Adverse Childhood Experience (ACE) studies had access to an unusually large population of patients as well as the patients' corresponding "medical history, laboratory results, and physical findings" (p. 247). They used a questionnaire which asked "While you were growing up during your first 18 years of life …" (p. 247) followed by questions found in the following prevalence chart:

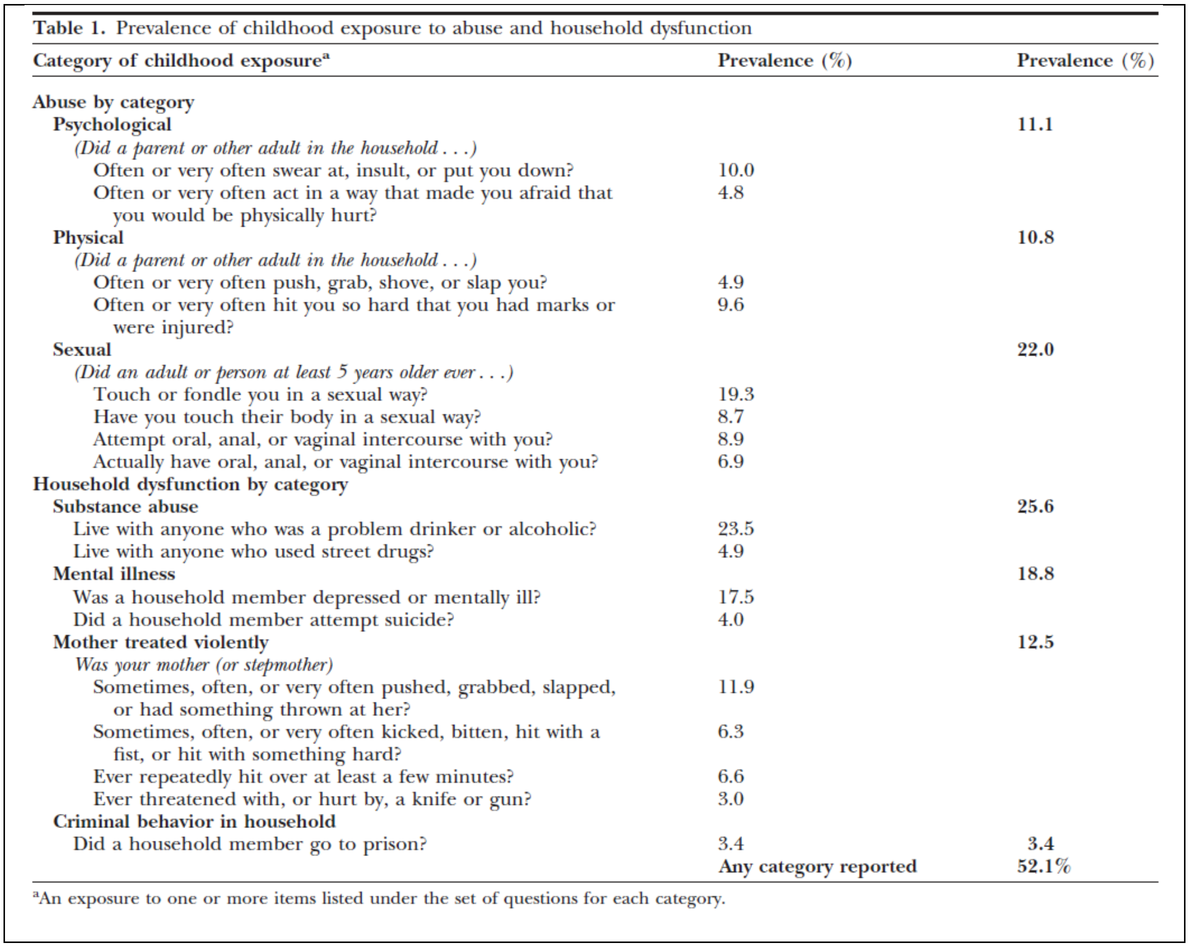


Table 1. Prevalence of childhood exposure to abuse and household dysfunction

Category of childhood exposure[a]	**Prevalence (%)**	**Prevalence (%)**
Abuse by category		
Psychological		**11.1**
(Did a parent or other adult in the household . . .)		
Often or very often swear at, insult, or put you down?	10.0	
Often or very often act in a way that made you afraid that you would be physically hurt?	4.8	
Physical		**10.8**
(Did a parent or other adult in the household . . .)		
Often or very often push, grab, shove, or slap you?	4.9	
Often or very often hit you so hard that you had marks or were injured?	9.6	
Sexual		**22.0**
(Did an adult or person at least 5 years older ever . . .)		
Touch or fondle you in a sexual way?	19.3	
Have you touch their body in a sexual way?	8.7	
Attempt oral, anal, or vaginal intercourse with you?	8.9	
Actually have oral, anal, or vaginal intercourse with you?	6.9	
Household dysfunction by category		
Substance abuse		**25.6**
Live with anyone who was a problem drinker or alcoholic?	23.5	
Live with anyone who used street drugs?	4.9	
Mental illness		**18.8**
Was a household member depressed or mentally ill?	17.5	
Did a household member attempt suicide?	4.0	
Mother treated violently		**12.5**
Was your mother (or stepmother)		
Sometimes, often, or very often pushed, grabbed, slapped, or had something thrown at her?	11.9	
Sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?	6.3	
Ever repeatedly hit over at least a few minutes?	6.6	
Ever threatened with, or hurt by, a knife or gun?	3.0	
Criminal behavior in household		
Did a household member go to prison?	3.4	**3.4**
	Any category reported	**52.1%**

[a]An exposure to one or more items listed under the set of questions for each category.

Table 2.3. Prevalence Chart. Adapted from Felitti, M. D., Vincent, J., Anda, M. D., Robert, F., Nordenberg, M. D., Williamson, M. S., ... & James, S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American journal of preventive medicine*, *14*(4), 245-258, p. 247.

Known health risk factors in the study included severe obesity (Body Mass Index ≥35), sedentary lifestyle, alcoholism/illegal drug use, depressed mood, smoking, and suicide attempts. As shown in the following table, the number of adverse childhood experiences significantly correlated with the number of known health high risk factors:

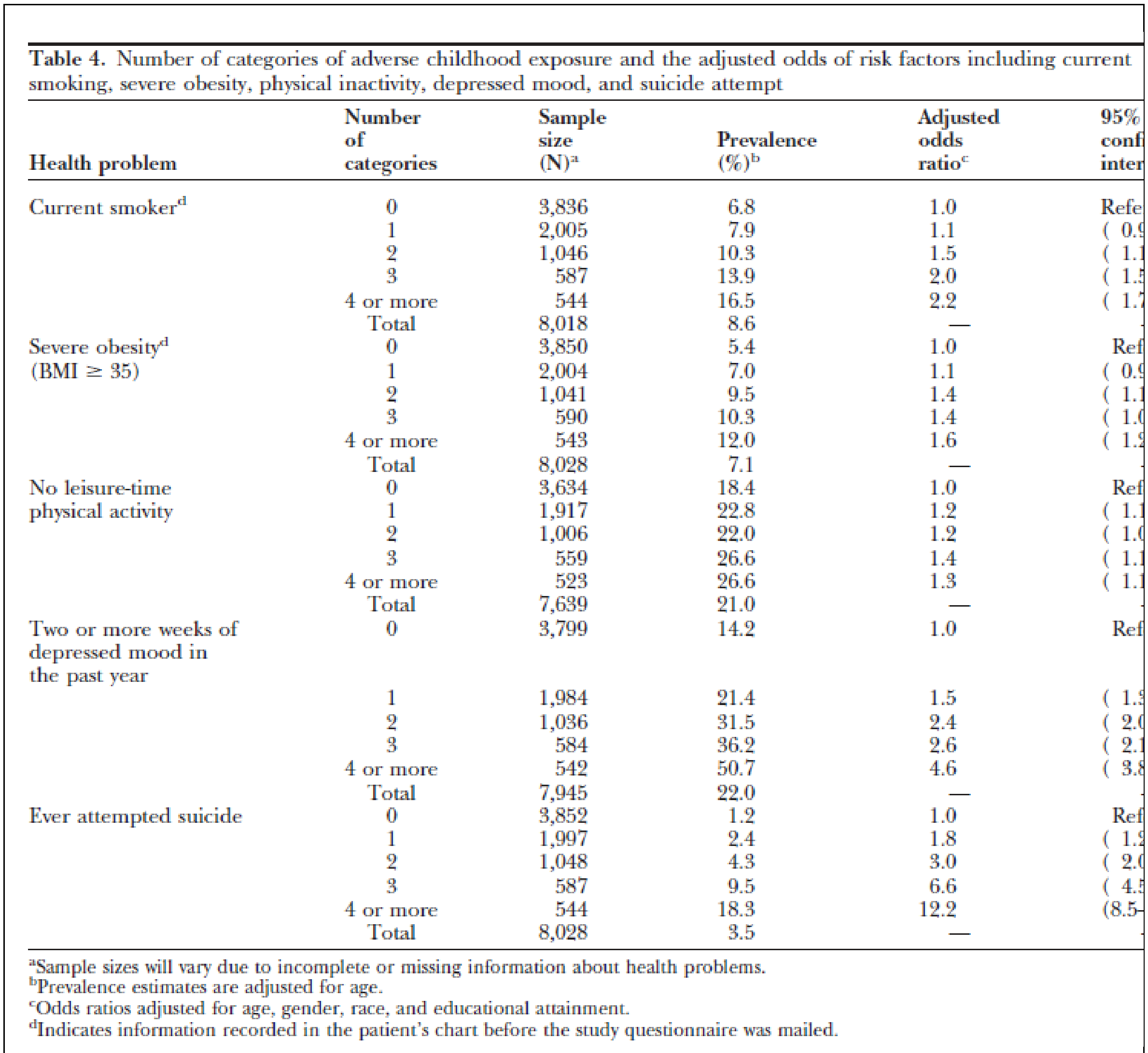


Table 4. Number of categories of adverse childhood exposure and the adjusted odds of risk factors including current smoking, severe obesity, physical inactivity, depressed mood, and suicide attempt

Health problem	**Number of categories**	**Sample size (N)[a]**	**Prevalence (%)[b]**	**Adjusted odds ratio[c]**	**95% conf inter**
Current smoker[d]	0	3,836	6.8	1.0	Refe
	1	2,005	7.9	1.1	(0.9
	2	1,046	10.3	1.5	(1.1
	3	587	13.9	2.0	(1.5
	4 or more	544	16.5	2.2	(1.7
	Total	8,018	8.6	—	
Severe obesity[d] (BMI ≥ 35)	0	3,850	5.4	1.0	Ref
	1	2,004	7.0	1.1	(0.9
	2	1,041	9.5	1.4	(1.1
	3	590	10.3	1.4	(1.0
	4 or more	543	12.0	1.6	(1.2
	Total	8,028	7.1	—	
No leisure-time physical activity	0	3,634	18.4	1.0	Ref
	1	1,917	22.8	1.2	(1.1
	2	1,006	22.0	1.2	(1.0
	3	559	26.6	1.4	(1.1
	4 or more	523	26.6	1.3	(1.1
	Total	7,639	21.0	—	
Two or more weeks of depressed mood in the past year	0	3,799	14.2	1.0	Ref
	1	1,984	21.4	1.5	(1.9
	2	1,036	31.5	2.4	(2.0
	3	584	36.2	2.6	(2.1
	4 or more	542	50.7	4.6	(3.8
	Total	7,945	22.0	—	
Ever attempted suicide	0	3,852	1.2	1.0	Ref
	1	1,997	2.4	1.8	(1.2
	2	1,048	4.3	3.0	(2.0
	3	587	9.5	6.6	(4.5
	4 or more	544	18.3	12.2	(8.5-
	Total	8,028	3.5	—	

[a] Sample sizes will vary due to incomplete or missing information about health problems.
[b] Prevalence estimates are adjusted for age.
[c] Odds ratios adjusted for age, gender, race, and educational attainment.
[d] Indicates information recorded in the patient's chart before the study questionnaire was mailed.

Table 2.4. ACE Health Risk Factors I. Adapted from Felitti, M. D., Vincent, J., Anda, M. D., Robert, F., Nordenberg, M. D., Williamson, M. S., ... & James, S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American journal of preventive medicine*, *14*(4), 245-258, p. 252

The Adverse Childhood Experiences (ACE) studies reflected a new paradigm for disease (Kuhn, 1970), consistent with Selye's concepts of autonomic function and his general adaptation syndrome of stress (GAS). Recent research regarding the correlation of childhood trauma exposure and subsequent substance and alcohol use disorders builds upon the new paradigm presented by the Adverse Childhood Experiences (ACE) studies (Brown & Wolfe, 1994; Johnson, Cottler, Callahan, O'Leary, & Abdallah, 2010).

Conceptually speaking, early childhood witnessing Interpersonal Partnership Violence (IPV)/Domestic Violence (DV) disrupted Kris' developmental pathway pushing it outside Bowlby's (1988) normative range. This in turn led in time to the development of a number of chronic conditions listed above, including fibromyalgia and longstanding psychogenic pain. The developmental impact of Kris' early and ongoing exposure to Interpersonal Partner Violence (IPV)/Domestic Violence (DV) can be seen from the following figure taken from Felitti et al. (1998):

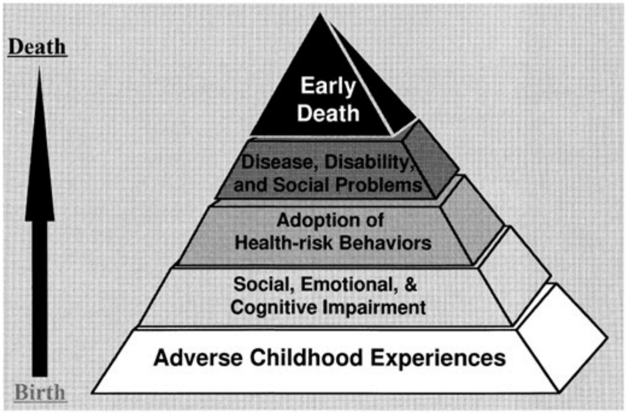

Death
Early Death
Disease, Disability, and Social Problems
Adoption of Health-risk Behaviors
Social, Emotional, & Cognitive Impairment
Adverse Childhood Experiences
Birth

Figure 2. Potential influences throughout the lifespan of adverse childhood experiences.

(p. 256)

Figure 2.36. Felitti's Adverse Childhood Events (ACE) Pyramid. Adapted from Felitti, M. D., Vincent, J., Anda, M. D., Robert, F., Nordenberg, M. D., Williamson, M. S., ... & James, S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American journal of preventive medicine*, *14*(4), 245-258, p. 256.

Kris' adverse childhood experiences seriously impaired her social, emotional, and cognitive function. This, in turn, resulted in largely internalizing behaviors on her part which took the form of somatic illnesses, including chronic and disabling pain and fatigue associated with long term autonomic, hormonal and other neurobiological dysregulations as well as withdrawn social behavior serving to keep her safe but lonely (Anda, et al., 2006; Everly & Lating, 2013; Lanius et al., 2014).

Developmental Trauma Disorder (DTD) & the *DSM-5* (2013)

Developmental Trauma Disorder (DTD) describes the childhood manifestation of adult Complex PTSD as will be defined/explored in the next section of this paper (Courtois & Ford, 2009; Stolbach, Minshew, Rompala, Dominguez, Gazibara, & Finke, 2013; and, van der Kolk et al., 2009; van Dijke, Ford, Frank, & van der Hart, 2015). Developmental Trauma Disorder (DTD) research has clarified the developmental trajectory of adult Complex PTSD as well as the perplexing quandary of childhood emotional versus behavioral disorders and learning disabilities in school (Smith, 1990).

Developmental Trauma Disorder (DTD) and Disorders of Extreme Stress Not Otherwise Specified (DESNOS) both began in 1985 with collegial collaborations between Bessel A. van der Kolk and Judith Herman at Cambridge Hospital in Massachusetts. They were both physicians working with trauma survivors and Herman had just published her first book, *Father-Daughter Incest* (1981) (van der Kolk, 2014, p. 138). Van der Kolk and Herman were struck by a seemingly high incidence of childhood trauma and a Borderline Personality Disorder (BPD) diagnosis in their patients. At the time, no research linked the two. They devised a study to determine if their clinical experience involved a statistically significant and generalizable correlation.

Herman and van der Kolk (1990) developed a questionnaire for determining adverse childhood experience—The Traumatic Antecedents Questionnaire (TAQ); and fashioned a study with the help of Chris Perry, the director of research at Cambridge Hospital at the time. Their study (N = 44, with 21 Borderline Personality Disorder (BPD) and 23 non- Borderline Personality Disorder) demonstrated a strong link between the development of Borderline Personality Disorder (BPD) and child sexual abuse (Herman, Perry, van der Kolk, 1989). This early finding with a small sample has been repeatedly replicated (See Cole & Putnam, 1992, p. 175 for early review; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997; and citations in van der Kolk, 2014, p. 140 at footnote 6 and p. 387).

The Traumatic Antecedents Questionnaire (TAQ) tends to bypass defensive answering patterns "because of its focus on the occurrence of traumatic exposure within a developmental framework" (Luxenberg, Spinazzola & van der Kolk, 2001, p. 382). Administering the Traumatic Antecedents Questionnaire (TAQ) with the Structured Interview for Disorders of Extreme Stress (SIDES) gives a clinician or researcher (as they gave me in treating Kris) useful developmental data necessary for making a Complex PTSD diagnosis (Luxenberg, Spinazzola & van der Kolk, 2001, p. 382).

Using the Traumatic Antecedent Questionnaire (TAQ) with Kris was important. Her Adverse Childhood Experience (ACE) score was unremarkable for supposed lack of adverse childhood events. However, her Traumatic Antecedent Questionnaire (TAQ) responses presented an entirely different picture—most likely because of the Traumatic Antecedent Questionnaire's (TAQ's) descriptive process; whereas, the Adverse Childhood Experience's (ACE's) questionnaire uses a categorical approach that invites disingenuous answers if, as was the case with Kris, the patient would never label her childhood or parents as anything but normal and nonabusive. Until recently, Kris zealously defended any unflattering emotional content regarding her mother.

Van der Kolk and Herman's efforts to establish an etiology for Borderline Personality Disorder (BPD) led to an increased awareness of the lack of any medical database or think-tank for the study, prevention, and treatment of child abuse and trauma. Thus, in 1998 when Adam Cummings of the Nathan Cummings Foundation approached van der Kolk regarding a proposed study of the effects of trauma upon learning, van der Kolk pointed out "there was no forum to implement the discoveries that had already been made" (van der Kolk, 2014, p. 155). This led to a subsequent meeting among Cummings, van der Kolk, and Senator Ted Kennedy's health care advisor.

That meeting ultimately resulted in the 1991 unanimous bipartisan Congressional establishment and support of the National Child Traumatic Stress Network (NCTSN), the goal of which was to "raise the standard of care and improve access to services for traumatized children, their families and communities throughout the United States" (http://www.nctsn.org/about-us/mission-and-vision). The data developed through the NCTSN better serves traumatized children, who tend to somaticize stress and who often present in the schools and mental health system with a plethora of diagnoses including behavioral problems.

Perry (2014, January 29) called developmental trauma with its multiplicity of diagnoses the "great imposter" in the mental health system and the schools, stating that early childhood trauma disrupts primary neural regulatory systems originating in the brain stem upon which systems the entire function and organization of the brain relies:

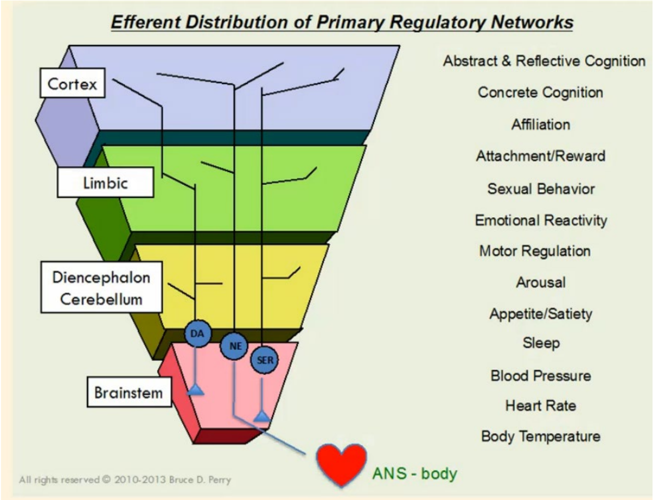


Figure 2.37. Efferent Distribution of Primary Regulatory Networks according to Perry. Adapted from Perry, B. (2014, January 29). *The impact of trauma and neglect on young children.* McSilver Institute for Poverty, Policy and Research. Retrieved from http://www.ctacny.com/the-impact-of-trauma-and-neglect-on-young-children-video.html, 9:42. (See also, Davis, Moss, & Nogin, 2015 and Posner & Rothbart, 2000).

Prior to Perry et al.'s (1995) *neurodevelopmental conceptualization of childhood trauma* being generally accepted, children were assumed to be "resilient" in the face of trauma. However, the *resiliency myth* minimized the impact of trauma upon child development (Perry et al., 1995, p. 272; See also, Overstreet & Mathews, 2011 citing Fletcher et al., 1996 whose meta-analysis found 1/3 of children exposed to trauma develop some form of PTSD and this finding was higher for repeated exposures to traumatic stressors).

Perry et al. (1995) explained that trauma undermines the normal development and function of the child's brain. By adulthood the human brain quadruples in size due to a combination of myelination processes--whereby electrical conductivity improves with the fatty insulation provided by myelin sheathing around neuronal axons—and the connections among branching neuronal dendrites (Johnson, 2011). Note the increase in density illustrated in the following drawings based upon microscope studies of infant cortices from birth to 6 months:

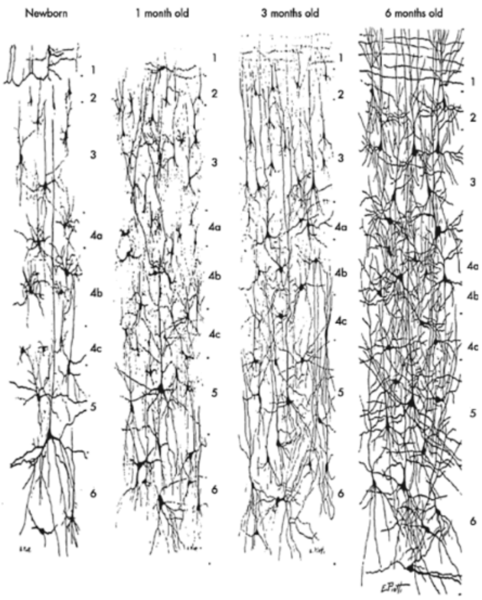


FIGURE 4.3 Drawings of the cellular structure of the human visual cortex based on Golgi stain preparations from Conel (1939–1967). Reprinted by permission of the publisher from *Postnatal Development of Human Cerebral Cortex,*

Figure 2.38. Synaptic Arborization of the Infant Brain. Adapted from Johnson, M. H., (2011). Developmental neuroscience, psychophysiology and genetics. In M. H. Bornstein & M. E. Lamb (Eds.), *Developmental science: An advanced textbook* (6th ed.) (pp. 201-240). New York: Psychology Press, p. 209.

Early synaptic connectivity proliferates to an overly abundant 10,000 connections per cell by age 1 (Kandell, 2007), when the first synaptic pruning takes place along the *use it or lose it* principle, and again overproduces synaptic connections when the second pruning takes place just before puberty (Bornstein, Arterberry, & Mash, 2011, p. 317). Thus, these two times in a child's life, the first year of life and late-middle childhood just before puberty are particularly sensitive periods for brain development (Ibid). A recent study concerning peer based verbal abuse finding a particular vulnerability for developmental harm to school children (ages 11-13) exposed to peer verbal abuse hypothesized this vulnerability to relate to the second of these two pruning processes in childhood (Teicher, Samson, Sheu, Polcari, & McGreenery, 2010).

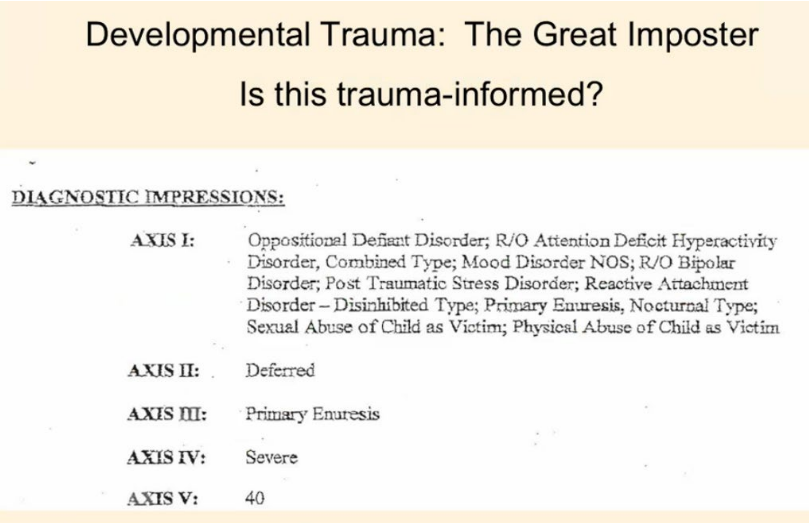
With Kris I was aware of what might have happened in her life during these times; however, nothing concrete to date has surfaced for these periods. Her exposure to

Interpersonal Partner Violence (IPV)/Domestic Violence (DV), emotional abuse, and neglect appears to have been chronic throughout her childhood and into her adult experience in marriage. Knowing how cruel children are, it is also likely she endured verbal abuse regarding her childhood obesity. However, she has not disclosed this as an issue for her to date.

Anda et al. (2006) surveyed the extant research on the neurobiological impact of chronic child abuse and neglect, and cited research demonstrating long-term changes in multiple brain circuits and systems including Hypothalamic, Pituitary, Adrenal (HPA) Axis dysregulation, that undermines normal integrative processes of the hippocampus regarding play, learning and memory (pp. 174-175).

Abuse and neglect have also been linked to the inhibition of the endogenous production of Brain Derived Neurotrophic Factor (BDNF) which promotes neurogenesis in the dentate nucleus of the Hippocampus, where memories are consolidated and integrated with the self (O’Donnell & Shelton, 2006, p. 457). Brain Derived Neurotrophic Factor (BDNF) is also known to have a preservative effect upon neurons (Sobel, 2012, p. 7). Neurotransmitter dysregulation secondary to childhood abuse or neglect was speculative when first proposed by Perry et al. (1995); however, now it is generally accepted in the scientific community (Sobel, 2012; Stahl, 2013).

Perry (2014, January 29) recently said that, once these fundamental underlying regulatory processes have been compromised, it is common for such children to receive numerous comorbid behavioral diagnoses such as those depicted below for an elementary school girl in the foster care system:



Developmental Trauma: The Great Imposter

Is this trauma-informed?

DIAGNOSTIC IMPRESSIONS:

AXIS I:	Oppositional Defiant Disorder; R/O Attention Deficit Hyperactivity Disorder, Combined Type; Mood Disorder NOS; R/O Bipolar Disorder; Post Traumatic Stress Disorder; Reactive Attachment Disorder – Disinhibited Type; Primary Enuresis, Nocturnal Type; Sexual Abuse of Child as Victim; Physical Abuse of Child as Victim
AXIS II:	Deferred
AXIS III:	Primary Enuresis
AXIS IV:	Severe
AXIS V:	40

Figure 2.39. Childhood Diagnostic Difficulties when Trauma Applies. Adapted from Perry, B. (2014, January 29). *The impact of trauma and neglect on young children.* McSilver Institute for Poverty, Policy and Research. Retrieved from http://www.ctacny.com/the-impact-of-trauma-and-neglect-on-young-children-video.html, 16:21.

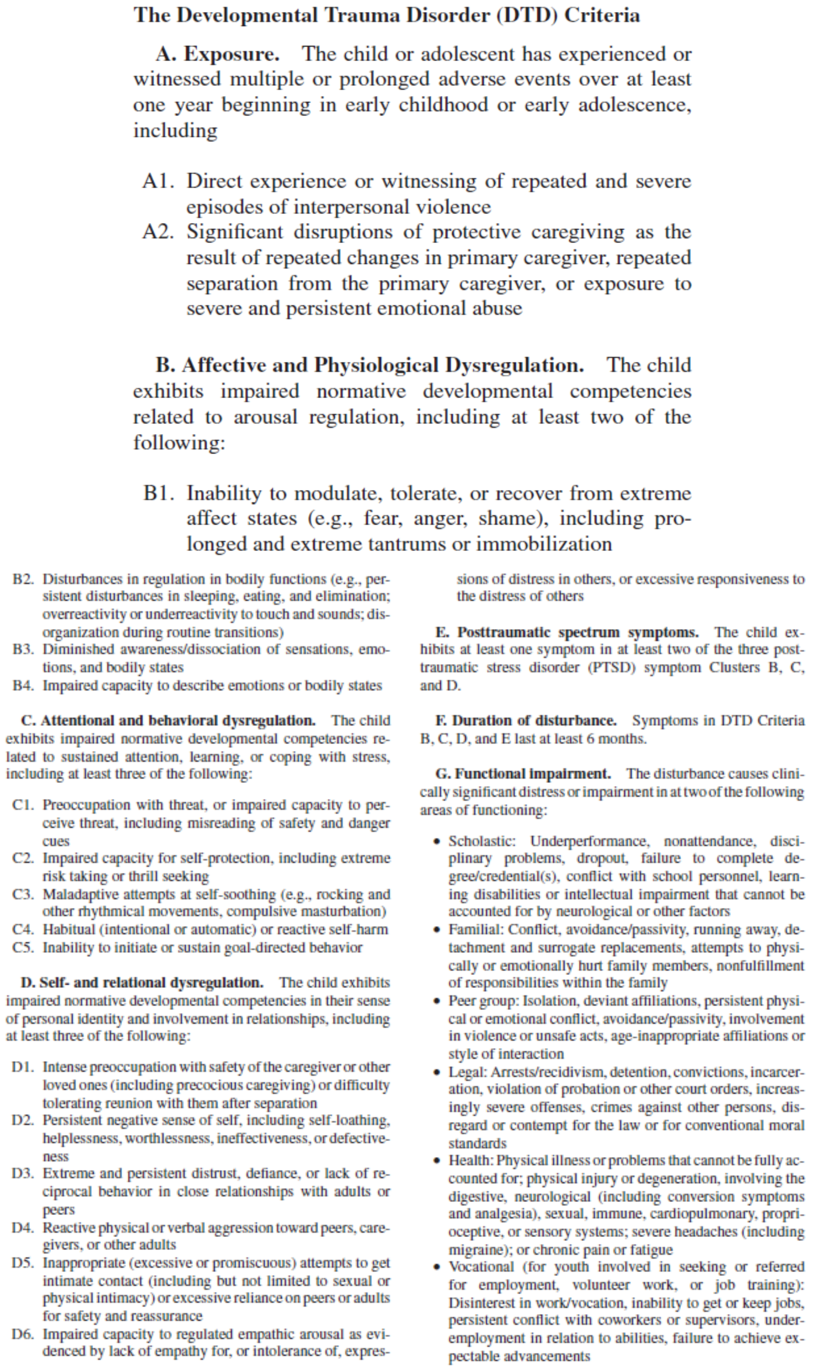
Terr (1991) similarly observed:

> If one looks only at the clinical manifestations of trauma in a given day in the life of the traumatized child, one could diagnose conduct disorder, borderline personality, major affective disorder, attention deficit hyperactivity, phobic disorder, dissociative disorder,
> obsessive-compulsive disorder, panic disorder, adjustment disorder, and even such conditions, as yet unofficial in the nomenclature, as precursors of multiple personality or acute dissociative disorder, and not be wrong. If one projects this multiplicity of technically correct diagnoses onto a traumatized child's adulthood, one finds even more diagnostic leeway (Terr, 1991, p. 10).

A convergence of neurobiological and psychological impact of adverse childhood events upon learning and human development fully informs Perry's lecture points (Hebb, 1949; Shatz, 1990; Stent, 1973; van der Kolk et al., 2009; Teicher, Anderson, Polcari, Anderson, & Navalta, 2002; Teicher et al., 2003; Teicher, Ito, Glod, Andersen, Dumont, & Ackerman, 1997). With the foregoing concepts linking trauma to adverse development and learning outcomes for children, van der Kolk (2005) explained that a new diagnosis of Developmental Trauma Disorder (DTD) would capture this dynamic impact trauma has upon children instead of labeling children with oppositional and conduct disorders when in fact they're actually traumatized.

Thus, with more and more research into the effects of trauma upon child development, a concerted effort was made for a new diagnosis in the *DSM-5* (2013)—*Developmental Trauma Disorder* (DTD). Van der Kolk (2014) wrote that he and numerous researchers and clinicians presented vast amounts of data substantiating such a diagnosis, including numerous prospective studies. However, Executive Director of the National Center for PTSD and *DSM* subcommittee chairman Matthew Friedman responded that "no diagnosis was required to fill a 'missing diagnostic niche … the notion that early childhood adverse experiences lead to substantial developmental disruptions is more clinical intuition than a research-based fact. This statement … cannot be backed up by prospective studies'" (van der Kolk, 2014, p. 159).

Nevertheless, research continues to grow and it is likely that disruptive, impulse-control, and conduct disorders (i.e. Oppositional Defiant Disorder, Intermittent Explosive Disorder, Conduct Disorder) may undergo a significant reconceptualization as evidence continues to accumulate for the validity of Developmental Trauma Disorder (DTD) for inclusion in future versions of the *DSM*. Stolbach et al. (2013) recently published the results of a preliminary test of Developmental Trauma Disorder (DTD) criteria using data derived from the treatment of 214 traumatized urban youth, using the following criteria to define Developmental Trauma Disorder (DTD):



The Developmental Trauma Disorder (DTD) Criteria

A. Exposure. The child or adolescent has experienced or witnessed multiple or prolonged adverse events over at least one year beginning in early childhood or early adolescence, including

A1. Direct experience or witnessing of repeated and severe episodes of interpersonal violence
A2. Significant disruptions of protective caregiving as the result of repeated changes in primary caregiver, repeated separation from the primary caregiver, or exposure to severe and persistent emotional abuse

B. Affective and Physiological Dysregulation. The child exhibits impaired normative developmental competencies related to arousal regulation, including at least two of the following:

B1. Inability to modulate, tolerate, or recover from extreme affect states (e.g., fear, anger, shame), including prolonged and extreme tantrums or immobilization
B2. Disturbances in regulation in bodily functions (e.g., persistent disturbances in sleeping, eating, and elimination; overreactivity or underreactivity to touch and sounds; disorganization during routine transitions)
B3. Diminished awareness/dissociation of sensations, emotions, and bodily states
B4. Impaired capacity to describe emotions or bodily states

C. Attentional and behavioral dysregulation. The child exhibits impaired normative developmental competencies related to sustained attention, learning, or coping with stress, including at least three of the following:

C1. Preoccupation with threat, or impaired capacity to perceive threat, including misreading of safety and danger cues
C2. Impaired capacity for self-protection, including extreme risk taking or thrill seeking
C3. Maladaptive attempts at self-soothing (e.g., rocking and other rhythmical movements, compulsive masturbation)
C4. Habitual (intentional or automatic) or reactive self-harm
C5. Inability to initiate or sustain goal-directed behavior

D. Self- and relational dysregulation. The child exhibits impaired normative developmental competencies in their sense of personal identity and involvement in relationships, including at least three of the following:

D1. Intense preoccupation with safety of the caregiver or other loved ones (including precocious caregiving) or difficulty tolerating reunion with them after separation
D2. Persistent negative sense of self, including self-loathing, helplessness, worthlessness, ineffectiveness, or defectiveness
D3. Extreme and persistent distrust, defiance, or lack of reciprocal behavior in close relationships with adults or peers
D4. Reactive physical or verbal aggression toward peers, caregivers, or other adults
D5. Inappropriate (excessive or promiscuous) attempts to get intimate contact (including but not limited to sexual or physical intimacy) or excessive reliance on peers or adults for safety and reassurance
D6. Impaired capacity to regulated empathic arousal as evidenced by lack of empathy for, or intolerance of, expressions of distress in others, or excessive responsiveness to the distress of others

E. Posttraumatic spectrum symptoms. The child exhibits at least one symptom in at least two of the three posttraumatic stress disorder (PTSD) symptom Clusters B, C, and D.

F. Duration of disturbance. Symptoms in DTD Criteria B, C, D, and E last at least 6 months.

G. Functional impairment. The disturbance causes clinically significant distress or impairment in at two of the following areas of functioning:

- Scholastic: Underperformance, nonattendance, disciplinary problems, dropout, failure to complete degree/credential(s), conflict with school personnel, learning disabilities or intellectual impairment that cannot be accounted for by neurological or other factors
- Familial: Conflict, avoidance/passivity, running away, detachment and surrogate replacements, attempts to physically or emotionally hurt family members, nonfulfillment of responsibilities within the family
- Peer group: Isolation, deviant affiliations, persistent physical or emotional conflict, avoidance/passivity, involvement in violence or unsafe acts, age-inappropriate affiliations or style of interaction
- Legal: Arrests/recidivism, detention, convictions, incarceration, violation of probation or other court orders, increasingly severe offenses, crimes against other persons, disregard or contempt for the law or for conventional moral standards
- Health: Physical illness or problems that cannot be fully accounted for; physical injury or degeneration, involving the digestive, neurological (including conversion symptoms and analgesia), sexual, immune, cardiopulmonary, proprioceptive, or sensory systems; severe headaches (including migraine); or chronic pain or fatigue
- Vocational (for youth involved in seeking or referred for employment, volunteer work, or job training): Disinterest in work/vocation, inability to get or keep jobs, persistent conflict with coworkers or supervisors, underemployment in relation to abilities, failure to achieve expectable advancements

Figure 2.40. Developmental Trauma Disorder (DTD). Adapted from Stolbach, B. C., Minshew, R., Rompala, V., Dominguez, R. Z., Gazibara, T., & Finke, R. (2013). Complex trauma exposure and symptoms in urban traumatized children: a preliminary test of proposed criteria for developmental trauma disorder. *Journal of traumatic stress*, *26*(4), 483-491, Appendix A.

Trauma-informed practice helps a clinician working with children and adolescents understand where numerous co-morbid disruptive disorders, such as oppositional defiance disorder, originate (Scheeringa, Zeanah, Myers, & Putnam, 2003). The current arguments favoring and disfavoring inclusion of Developmental Trauma Disorder (DTD) in future versions of the *DSM* are set forth in the following table:

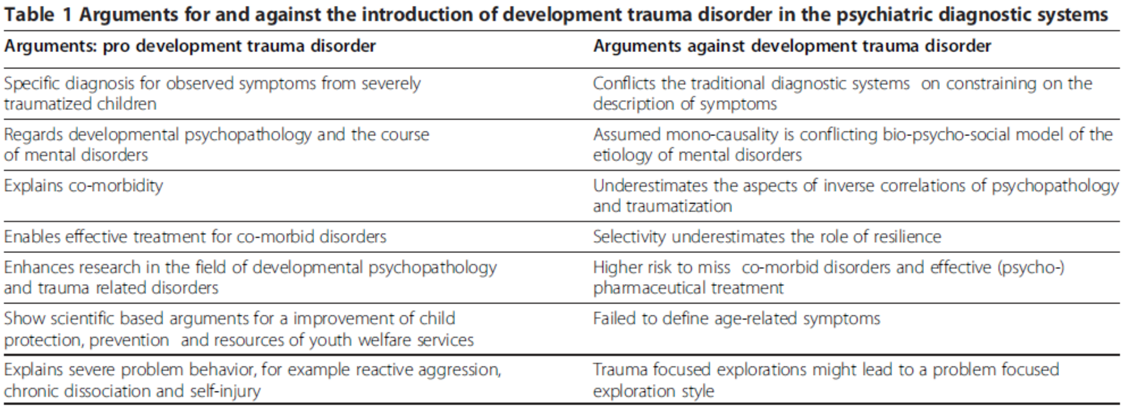
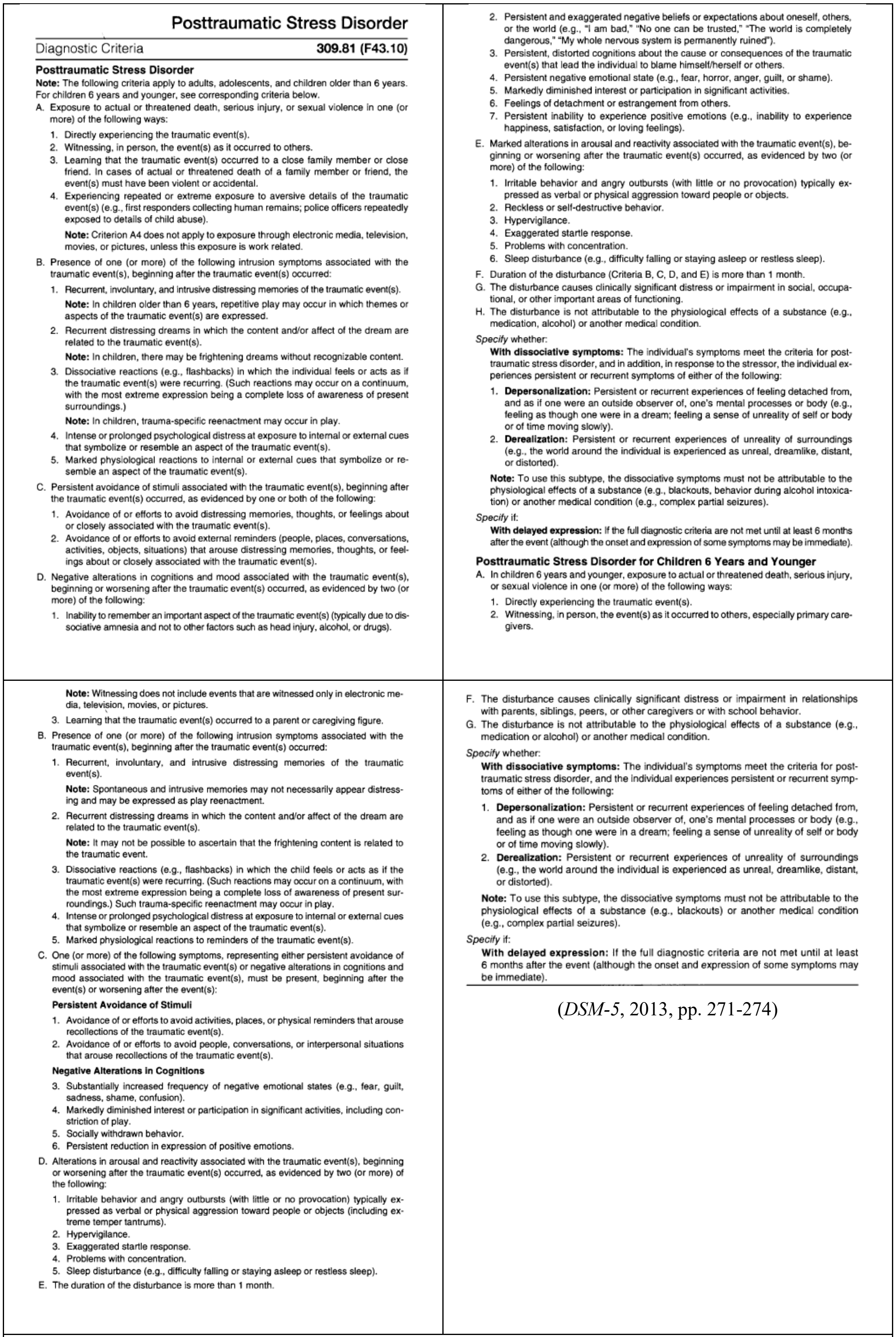


Table 1 Arguments for and against the introduction of development trauma disorder in the psychiatric diagnostic systems

Arguments: pro development trauma disorder	Arguments against development trauma disorder
Specific diagnosis for observed symptoms from severely traumatized children	Conflicts the traditional diagnostic systems on constraining on the description of symptoms
Regards developmental psychopathology and the course of mental disorders	Assumed mono-causality is conflicting bio-psycho-social model of the etiology of mental disorders
Explains co-morbidity	Underestimates the aspects of inverse correlations of psychopathology and traumatization
Enables effective treatment for co-morbid disorders	Selectivity underestimates the role of resilience
Enhances research in the field of developmental psychopathology and trauma related disorders	Higher risk to miss co-morbid disorders and effective (psycho-) pharmaceutical treatment
Show scientific based arguments for a improvement of child protection, prevention and resources of youth welfare services	Failed to define age-related symptoms
Explains severe problem behavior, for example reactive aggression, chronic dissociation and self-injury	Trauma focused explorations might lead to a problem focused exploration style

Figure 2.41. Pros and Cons of Recognizing DTD as a Psychiatric Diagnosis. Adapted from Schmid, M., Petermann, F., & Fegert, J. M. (2013). Developmental trauma disorder: pros and cons of including formal criteria in the psychiatric diagnostic systems. *BioMed Central Psychiatry*, *13*(1), 3, p. 6.

The *DSM-5* (2013) defined PTSD as follows:



Posttraumatic Stress Disorder

Diagnostic Criteria **309.81 (F43.10)**

Posttraumatic Stress Disorder

Note: The following criteria apply to adults, adolescents, and children older than 6 years. For children 6 years and younger, see corresponding criteria below.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
   1. Directly experiencing the traumatic event(s).
   2. Witnessing, in person, the event(s) as it occurred to others.
   3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
   4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

      Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
   1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

      Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
   2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

      Note: In children, there may be frightening dreams without recognizable content.
   3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

      Note: In children, trauma-specific reenactment may occur in play.
   4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
   5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:
   1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
   2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
   1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).
   2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," "The world is completely dangerous," "My whole nervous system is permanently ruined").
   3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
   4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
   5. Markedly diminished interest or participation in significant activities.
   6. Feelings of detachment or estrangement from others.
   7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
   1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
   2. Reckless or self-destructive behavior.
   3. Hypervigilance.
   4. Exaggerated startle response.
   5. Problems with concentration.
   6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

Specify whether:

With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:
1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).
2. **Derealization:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behavior during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

Posttraumatic Stress Disorder for Children 6 Years and Younger

A. In children 6 years and younger, exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
   1. Directly experiencing the traumatic event(s).
   2. Witnessing, in person, the event(s) as it occurred to others, especially primary caregivers.

      Note: Witnessing does not include events that are witnessed only in electronic media, television, movies, or pictures.
   3. Learning that the traumatic event(s) occurred to a parent or caregiving figure.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:
   1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

      Note: Spontaneous and intrusive memories may not necessarily appear distressing and may be expressed as play reenactment.
   2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

      Note: It may not be possible to ascertain that the frightening content is related to the traumatic event.
   3. Dissociative reactions (e.g., flashbacks) in which the child feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) Such trauma-specific reenactment may occur in play.
   4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
   5. Marked physiological reactions to reminders of the traumatic event(s).

C. One (or more) of the following symptoms, representing either persistent avoidance of stimuli associated with the traumatic event(s) or negative alterations in cognitions and mood associated with the traumatic event(s), must be present, beginning after the event(s) or worsening after the event(s):

   Persistent Avoidance of Stimuli
   1. Avoidance of or efforts to avoid activities, places, or physical reminders that arouse recollections of the traumatic event(s).
   2. Avoidance of or efforts to avoid people, conversations, or interpersonal situations that arouse recollections of the traumatic event(s).

   Negative Alterations in Cognitions
   3. Substantially increased frequency of negative emotional states (e.g., fear, guilt, sadness, shame, confusion).
   4. Markedly diminished interest or participation in significant activities, including constriction of play.
   5. Socially withdrawn behavior.
   6. Persistent reduction in expression of positive emotions.

D. Alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
   1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects (including extreme temper tantrums).
   2. Hypervigilance.
   3. Exaggerated startle response.
   4. Problems with concentration.
   5. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

E. The duration of the disturbance is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in relationships with parents, siblings, peers, or other caregivers or with school behavior.

G. The disturbance is not attributable to the physiological effects of a substance (e.g., medication or alcohol) or another medical condition.

Specify whether:

With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and the individual experiences persistent or recurrent symptoms of either of the following:
1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).
2. **Derealization:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts) or another medical condition (e.g., complex partial seizures).

Specify if:

With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

(*DSM-5*, 2013, pp. 271-274)

Figure 2.42. DSM-5 (2013), PTSD. Adapted from American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author, pp. 271-274.

The *DSM-5* (2013) incorporated more of Disorders of Extreme Stress Not Otherwise Specified (DESNOS) and Developmental Trauma Disorder (DTD) research for a more nuanced and elaborate definition of PTSD which embraced witnessing Interpersonal Partner Violence (IPV)/Domestic Violence (DV) and Childhood Sexual Abuse (CSA). Note the inclusion of "witnessing" at Criteria A2—an addition that brings more child abuse survivors within the exposure criteria for PTSD (Pereda & Forero, 2012).

Both being female and being a child when exposed to a PTSD stressor increase the risk of developing PTSD. Also, "trauma perpetrated by a caregiver or involving a witnessed threat to a caregiver in children" are now included in the language describing PTSD (*DSM-5*, 2013, pp. 277-278). Kris now comes into the categorical lines of PTSD as defined in the *DSM-5* (2013), having witnessed numerous extreme incidents of IPV as a young child.

DSM-5 (2013) has inserted many of the Disorders of Extreme Stress Not Otherwise Specified (DESNOS) (Luxenberg et al., 2001; van der Kolk et al., 2005) and DTD (Stolbach et al., 2013; van der Kolk, 2009) research findings (described above) within its diagnostic criteria at Criteria D—"Negative alterations in cognitions and mood associated with the traumatic event(s)…" (*DSM-5*, 2013, p. 272). Trauma related alterations in affect, attention and consciousness, perception of self, relations with others and systems of meaning (Disorders of Extreme Stress Not Otherwise Specified (DESNOS)/Complex PTSD criteria) are now incorporated within the *DSM-5*'s diagnostic criteria for PTSD. Somatization is the only element of Disorders of Extreme Stress Not Otherwise Specified (DESNOS)/Complex PTSD not enveloped in the *DSM-5*'s definition of PTSD. Although PTSD in the *DSM-5* has incorporated much of the research informing

Complex PTSD, it is debatable whether it captures Complex PTSD’s tone or emphasis upon the impact of interpersonal betrayal upon one’s sense of self (Ford & Courtois, 2009, p. 16).

III.

Defining Complex PTSD (Complex PTSD) & Kris' Diagnosis

Recognized diagnoses bring with them power and money (van der Kolk, 2014). During World War I, for example, a diagnosis of shell shock entitled soldiers to both treatment and disability payments; however, a diagnosis of neurasthenia, which had the same etiology, did not (Myers, 1915, pp. 316-320; van der Kolk, 2014, p. 185) Likewise in World War II, a diagnosis of "operational fatigue" allowed a pilot to continue flying; however, if diagnosed with combat neurosis, he was grounded (Grinker & Spiegel, 1945, pp. 208-210). Because a diagnosis necessarily implicates weighty legal and socio-cultural implications issues of disability and compensation make any diagnosis a political issue.

Differential Diagnosis: PTSD, Borderline Personality Disorder (BPD) & Complex PTSD

As set forth above, the *DSM-IV* (2000) PTSD field trials and subsequent research demonstrated the validity of the Disorders of Extreme Stress Not Otherwise Specified (DESNOS)/Complex PTSD construct as capturing a constellation of six interrelated clusters of symptoms distinct from, but sharing features with PTSD and Borderline Personality Disorder (BPD) (Driessen, Beblo, Reddemann, Rau, Lange, Silva, &, … Ratzka, 2002; Ford & Courtois, 2014; Luxenberg et al., 2001; Stolbach et al., 2013; Resick, et al., 2012; van der Kolk et al.; 2001, 2005, 2009; van Dijke, Ford, Frank, & van der Hart, 2015).

Currently, these interrelated clusters of symptoms or shared features between PTSD, Complex PTSD, and Borderline Personality Disorder (BPD) preclude including Complex PTSD in the *DSM*. Resick et al. (2012), for example, maintained that including

Complex PTSD in the *DSM* would create more confusion than clinical usefulness. They provide the following persuasive Ven diagram illustrating this concern:

Critical Evaluation of CPTSD 245

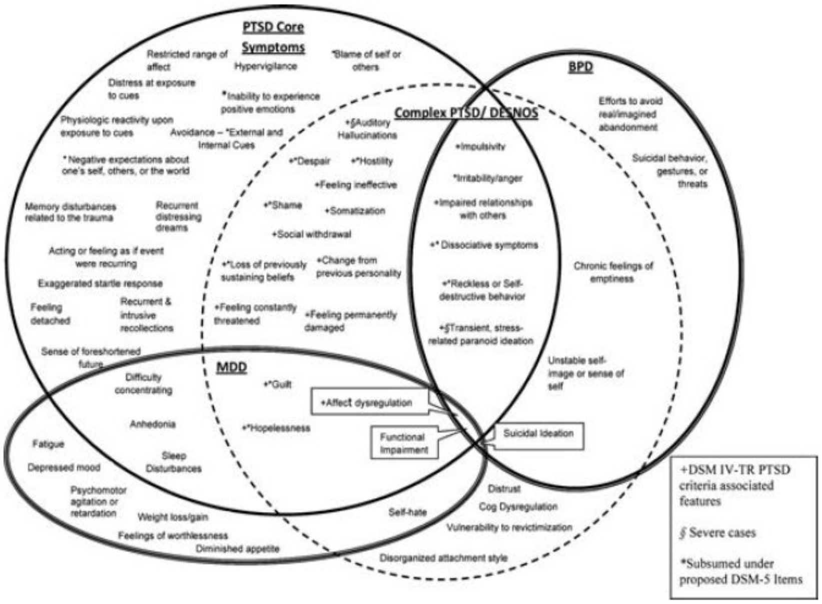

PTSD Core Symptoms
Restricted range of affect
Hypervigilance
*Blame of self or others
Distress at exposure to cues
*Inability to experience positive emotions
Physiologic reactivity upon exposure to cues
Avoidance – *External and Internal Cues
* Negative expectations about one's self, others, or the world
Memory disturbances related to the trauma
Recurrent distressing dreams
Acting or feeling as if event were recurring
Exaggerated startle response
Feeling detached
Recurrent & intrusive recollections
Sense of foreshortened future
Complex PTSD/ DESNOS
+§Auditory Hallucinations
+*Despair
+*Hostility
+Feeling ineffective
+*Shame
+Somatization
+Social withdrawal
+*Loss of previously sustaining beliefs
+Change from previous personality
+Feeling constantly threatened
+Feeling permanently damaged
+Impulsivity
*Irritability/anger
+Impaired relationships with others
+* Dissociative symptoms
+*Reckless or Self-destructive behavior
+§Transient, stress-related paranoid ideation
BPD
Efforts to avoid real/imagined abandonment
Suicidal behavior, gestures, or threats
Chronic feelings of emptiness
Unstable self-image or sense of self
MDD
Difficulty concentrating
+*Guilt
+Affect dysregulation
Anhedonia
+*Hopelessness
Functional Impairment
Suicidal Ideation
Fatigue
Depressed mood
Sleep Disturbances
Psychomotor agitation or retardation
Weight loss/gain
Feelings of worthlessness
Diminished appetite
Self-hate
Distrust
Cog Dysregulation
Vulnerability to revictimization
Disorganized attachment style
+DSM IV-TR PTSD criteria associated features
§ Severe cases
*Subsumed under proposed DSM-5 Items

Figure 1. Venn diagram of the overlap between posttraumatic stress disorder (PTSD) core symptoms, PTSD-associated symptoms, disorders of extreme stress not otherwise specified (DESNOS)/complex PTSD, borderline personality disorder (BPD), and major depressive disorder (MDD).

Figure 3.1. Overlap between PTSD, Complex PTSD and Borderline Personality Disorder (BPD). Adapted from Resick, P., Bovin, M., Calloway, A., Dick, A., King, M., Mitchell, K., & Wolf, E. J. (2012). A critical evaluation of the complex PTSD literature: Implications for *DSM-5*. *Journal of Traumatic Stress*, *25*, 239–249, p. 245.

The *DSM-IV* (1994) and the *DSM-IV-TR* (2000) incorporated Disorders of Extreme Stress Not Otherwise Specified (DESNOS) criteria into the associated features section of their PTSD diagnoses. Both the *DSM-IV* and the *DSM-IV-TR* recognized that, for a child, developmentally inappropriate sexual experiences--even without threatened or actual violence or injury--may supply the experience requirement for purposes of diagnosing PTSD.

The *DSM-5* (2013) incorporated almost all of Disorders of Extreme Stress Not Otherwise Specified (DESNOS) and Developmental Trauma Disorder's (DTD) criteria into the body of its new PTSD diagnostic criteria. Developmental Trauma Disorder

(DTD) findings were assimilated by establishing separate criteria for children 6 years and younger. In that section for children 6 years and younger "negative alterations in cognitions" and "alterations in arousal and reactivity associated with the traumatic event(s)" both bear strong resemblance to the concerns raised by advocates of Developmental Trauma Disorder (DTD) that traumatized children are being misdiagnosed and, therefore, iatrogenically mistreated.

For adults, *DSM-5*'s (2013) section D, largely parallels Complex PTSD criteria as shown in the following table:

DSM-5's (2013) Incorporation of Complex PTSD / Disorders of Extreme Stress Not Otherwise Specified (DESNOS) criteria at section D "Negative alterations in cognitions and mood…"	Complex PTSD / Disorders of Extreme Stress Not Otherwise Specified (DESNOS) criteria incorporated into the DSM-5 (2013) (Luxenberg et al. 2001; van der Kolk et al. 2005)
"1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs)." (p. 271)	"II. Alterations in Attention or Consciousness (A or B *required*) A. Amnesia B. Transient Dissociative Episodes and Depersonalization" (p. 375, p. 391, respectively)
"2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., "I am bad," "No one can be trusted," 'The world is completely dangerous," "My whole nervous system is permanently ruined")." (p. 272)	"III. Alterations in Self-Perception *(Two of A–F required)*: A. Ineffectiveness B. Permanent Damage C. Guilt and Responsibility D. Shame E. Nobody Can Understand F. Minimizing IV. Alterations in Relations With Others *(One of A–C required):* A. Inability to Trust B. Revictimization C. Victimizing Others VI. Alterations in Systems of Meaning *(A or B required)*: A. Despair and Hopelessness B. Loss of Previously Sustaining Beliefs" (Ibid)
"3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others." (Ibid)	"III. Alterations in Self-Perception *(Two of A–F required)*: A. Ineffectiveness B. Permanent Damage C. Guilt and Responsibility D. Shame E. Nobody Can Understand F. Minimizing" (Ibid)

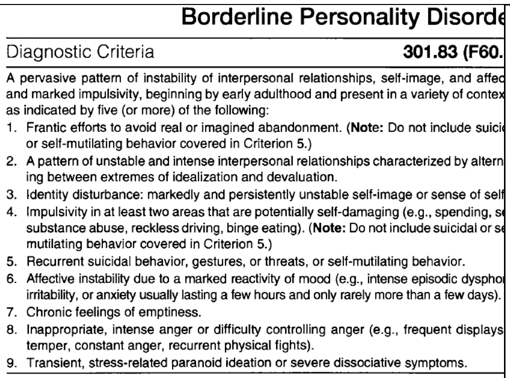
"4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame)." (Ibid)	"I. Alteration in Regulation of Affect and Impulses *(A and 1 of B–F required)*: A. Affect Regulation (2) B. Modulation of Anger (2) C. Self-Destructive D. Suicidal Preoccupation E. Difficulty Modulating Sexual Involvement F. Excessive Risk-taking" (Ibid)
"6. Feelings of detachment or estrangement from others." (Ibid)	"IV. Alterations in Relations With Others *(One of A–C required):* A. Inability to Trust B. Revictimization C. Victimizing Others" (Ibid)

Table 3.1. Comparing DSM-5 (2013) PTSD section D Criteria to Disorders of Extreme Stress Not Otherwise Specified (DESNOS) / Complex PTSD.

Specifiers in *DSM-5*'s PTSD criteria for dissociative symptoms (p. 274) brought Section II of the Disorders of Extreme Stress Not Otherwise Specified (DESNOS) criteria--namely Amnesia, Transient Dissociative Episodes, and Depersonalization--within the scope of PTSD criteria, as well (Luxenberg et al., 2001; van der Kolk, 2005). Thus, with the exception of somatization, all Complex PTSD research has been incorporated into *DSM-5*'s (2013) criteria for PTSD, enlarging PTSD's borders rather than establishing a new diagnosis for Complex PTSD.

Similarities between Borderline Personality Disorder (BPD) and Complex PTSD also abound. A side-by-side *DSM-5* comparison of Borderline Personality Disorder (BPD) and Complex PTSD criteria (van der Kolk et al., 2005) demonstrates that Borderline Personality Disorder (BPD) and Complex PTSD also describe essentially the same symptoms, excepting somatization:

Borderline Personality Disorder (BPD), *DSM-5* (2013), p. 663	Complex PTSD (van der Kolk et al., 2005, p. 135)



Borderline Personality Disorde

Diagnostic Criteria **301.83 (F60.**

A pervasive pattern of instability of interpersonal relationships, self-image, and affec and marked impulsivity, beginning by early adulthood and present in a variety of contex as indicated by five (or more) of the following:

1. Frantic efforts to avoid real or imagined abandonment. (**Note:** Do not include suici or self-mutilating behavior covered in Criterion 5.)
2. A pattern of unstable and intense interpersonal relationships characterized by altern ing between extremes of idealization and devaluation.
3. Identity disturbance: markedly and persistently unstable self-image or sense of self
4. Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, s substance abuse, reckless driving, binge eating). (**Note:** Do not include suicidal or s mutilating behavior covered in Criterion 5.)
5. Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior.
6. Affective instability due to a marked reactivity of mood (e.g., intense episodic dyspho irritability, or anxiety usually lasting a few hours and only rarely more than a few days).
7. Chronic feelings of emptiness.
8. Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays temper, constant anger, recurrent physical fights).
9. Transient, stress-related paranoid ideation or severe dissociative symptoms.

Figure 3.2. Borderline Personality Disorder (BPD) in DSM-5 (2013). Adapted from American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author, p. 663.

A diagnosis of Complex PTSD / Disorders of Extreme Stress Not Otherwise Specified (DESNOS) requires all the following:

1) alterations in the regulation of affective impulses, including difficulty with modulation of anger and being self-destructive;

2) alterations in attention and consciousness
leading to amnesias and dissociative episodes and depersonalizations;

3) alterations in self-perception, such as a chronic sense of guilt and responsibility or chronically feeling ashamed;

4) alterations in relationship to others, such as not being able to trust or not being able to feel intimate with people;

5) somatization the problem of feeling symptoms on a somatic level for which no medical explanations can be found; and

6) alterations in systems of meaning (see Table 6–3):

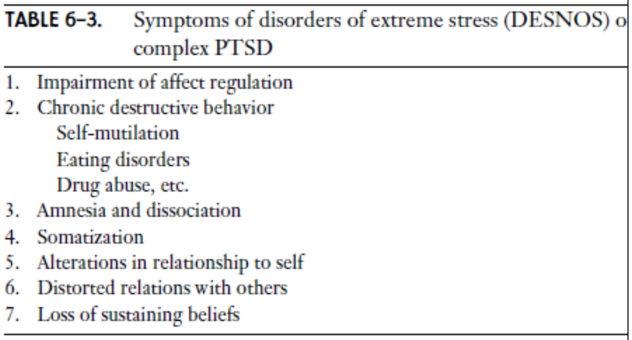


TABLE 6–3. Symptoms of disorders of extreme stress (DESNOS) o complex PTSD

1. Impairment of affect regulation
2. Chronic destructive behavior
    Self-mutilation
    Eating disorders
    Drug abuse, etc.
3. Amnesia and dissociation
4. Somatization
5. Alterations in relationship to self
6. Distorted relations with others
7. Loss of sustaining beliefs

Figure 3.3. Complex PTSD symptoms. Adapted from van der Kolk, B. A. (2005). Developmental trauma disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, *35*, 401–408, p. 135.

The foregoing diagnostic overlap between Complex PTSD, PTSD and Borderline Personality Disorder (BPD) (Pagura et al., 2010), led Becker (2000) to formulate Complex PTSD as a new and improved Borderline Personality Disorder (BPD). Older formulations of Borderline Personality Disorder (BPD) focused upon hypothesized relational dynamics between the mother and child during the one and a half to two year developmental phase (Kernberg, 1975; Mahler, Pine & Bergman, 1975). Basically, the idea was that the mother failed to provide an environment where the child received sufficient love, comfort, and safety to psychically integrate his or her aggressive thoughts and feelings resulting in the habitual use of primitive defense mechanisms (e.g. splitting) and a failure to develop an integrated sense of self. This lack of an integrated sense of self helped explain the extreme reliance upon others for one's sense of self so characteristic of adult Borderline Personality Disorder (BPD) patients (Masterson & Rinsley).

Thus, early formulations of Borderline Personality Disorder (BPD) in the mid-70s emphasized (pre-verbal) mother-child relationship dynamics in the etiology of the condition. Subsequent research however highlighted the correlation of Childhood Sexual Abuse (CSA) to Borderline Personality Disorder (BPD). For example, Herman et al. (1989) found an 81% correlation between adult Borderline Personality Disorder (BPD) and Childhood Sexual Abuse (CSA). Similarly, Yen et al. (2002) found a 91% correlation between the development of adult Borderline Personality Disorder (BPD) and unwanted childhood sexual contact and rape.

Goodman (2012) described a trauma spectrum which appears relevant when differentiating Borderline Personality Disorder (BPD) and Complex PTSD. Complex PTSD would lie on the less severe and Borderline Personality Disorder (BPD) would appear on the more severe end of the spectrum. Both Complex PTSD and Borderline Personality Disorder (BPD) describe symptoms arising out of a stress-diathesis of individual differences in temperament, genetic vulnerability, severity of traumatic stressor, interpersonal betrayal, and developmental vulnerabilities associated with the time in the lifespan when exposed. Thus, the difference between Borderline Personality Disorder (BPD) and Complex PTSD probably relates to a complex interplay of such variables (Gavranidou & Rosner, 2003; Herman, 1992; Hodges, 2003; Landecker, 1992; Lewis & Grenyer, 2009; McLean & Gallop, 2003; Olff, Langeland, Draijer, & Gersons, 2007).

Although experienced clinicians recognize how different it feels to work with a PTSD patient (with a known traumatic event causing the PTSD) and working with a Borderline Personality Disorder (BPD) patient with a history of Childhood Sexual Abuse (CSA), no known biomarkers yet exist to confirm a diagnosis (*DSM-5*, 2013, p. xli).

This discrepancy in overlapping diagnostic descriptions and the clinical felt sense of different diagnoses indicate a serious problem when diagnosing PTSD, Complex PTSD, and Borderline Personality Disorder (BPD). The trouble here may stem from inherent limitations in consensus research itself. Fortunately, neurophysiological research has begun to address the underlying pathophysiology of PTSD, Complex PTSD and Borderline Personality Disorder (BPD) (Cuthbert & Insel, 2013; Insel, 2015; Sanislow et al., 2010; Stahl, 2013).

The Research Domain Criteria Initiative (RDoc) of the National Institute of Mental Health (NIMH). Addressing the *DSM*'s problem with diagnostic overlap and lack of identified physiological substrates or processes associated with mental disorders, Insel et al. (2010) announced new priorities when granting National Institute of Mental Health (NIMH) research funds for psychiatric/psychological research. According to Insel et al. the diagnostic categorical approach based upon clinical consensus has reached the limits of its usefulness.

Neurophysiological processes of PTSD, Complex PTSD and Borderline Personality Disorder (BPD). The same basic neurophysiologic circuits and processes operationally inform PTSD, Complex PTSD & Borderline Personality Disorder (BPD) symptomatology. The distinction between the three appears to lie with differences in attachment, stress-diathesis, neurotransmission, and hormone/opioid/peptide regulatory functions.

PTSD and Complex PTSD: Imbalance of evaluative and regulatory brain processes. A recent prospective study of 20 subjects with a history of childhood trauma (including physical abuse, sexual abuse, and neglect) summarized the neurocircuitry associated with PTSD and Complex PTSD. In essence, PTSD symptomatology emerges as a function of an imbalance between evaluative processes of the Orbital Frontal Cortex (OFC) and Amygdala in the brain and *interoceptive*/*neuroceptive* (Insular) processes and regulatory control processes of the Dorsolateral Prefrontal Cortex (dlPFC), Ventral Medial Prefrontal Cortex (vmPFC), Anterior Cingulate Cortex (ACC), and Hippocampus of the brain (Demers et al., 2015).

Dore et al., 2015 depicted the evaluative and regulatory circuitry of the brain as follows:

Evaluative Circuitry of the Social Brain

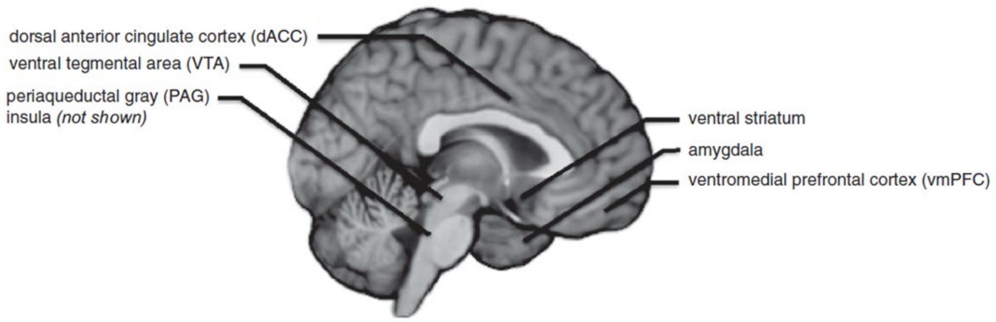

dorsal anterior cingulate cortex (dACC)
ventral tegmental area (VTA)
periaqueductal gray (PAG)
insula *(not shown)*
ventral striatum
amygdala
ventromedial prefrontal cortex (vmPFC)

Figure 3.4. Evaluation circuits of the social brain. These circuits combine sensory and interceptive input to potentiate approach or avoidance behavior, emotions, attitudes and decisions. Adapted from Dore, B. P., Zerubavel, N., & Ochsner, K. N. (2015). Social cognitive neuroscience: A review of core systems. In M. Mikulincer, P. R. Shaver, E. Borgida, & J. A. Bargh (Eds.), *APA handbook of personality and social psychology, vol. 1: Attitudes and social cognition* (pp. 693-720). Washington, DC: American Psychological Association, p. 659.

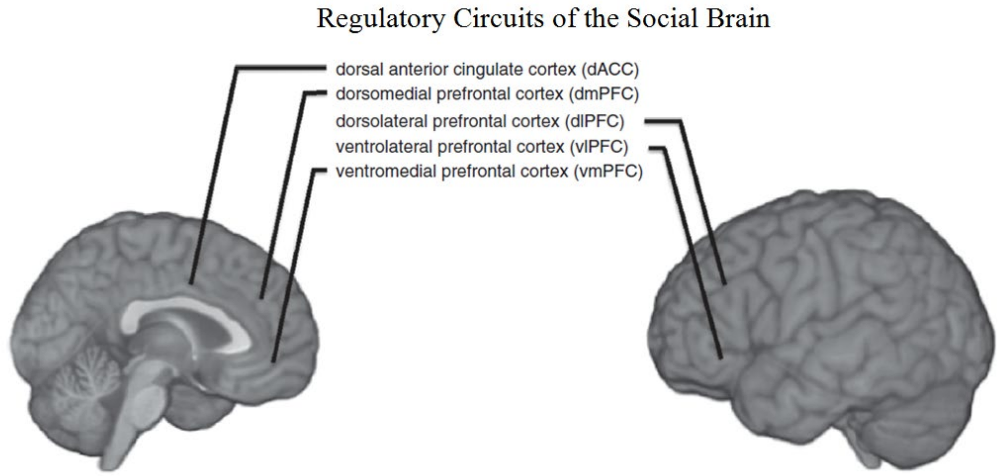

Regulatory Circuits of the Social Brain
dorsal anterior cingulate cortex (dACC)
dorsomedial prefrontal cortex (dmPFC)
dorsolateral prefrontal cortex (dlPFC)
ventrolateral prefrontal cortex (vlPFC)
ventromedial prefrontal cortex (vmPFC)

Figure 3.5. Regulatory circuits of the social brain. These circuits control evaluatory circuits by "overriding prepotent [reflex-like evaluatory] responses" to sensory and interoceptive input to facilitate "context-sensitive and deliberate" approach and avoidance behavior, emotions, attitudes and decisions. Adapted from Dore, B. P., Zerubavel, N., & Ochsner, K. N. (2015). Social cognitive neuroscience: A review of core systems. In M. Mikulincer, P. R. Shaver, E. Borgida, & J. A. Bargh (Eds.), *APA handbook of personality and social psychology, vol. 1: Attitudes and social cognition* (pp. 693-720). Washington, DC: American Psychological Association, p. 697.

In Demers et al.'s study (2015) childhood emotional neglect was associated with reduced Ventral Medial Prefrontal Cortex (vmPFC) volume and resilience was associated with increased Ventral Medial Prefrontal Cortex (vmPFC) volume. They explained their results by observing that emotional neglect deprives the developing child of opportunities to learn and thereby develop stress resisting/resiliency neurocircuitry which manifests as a significant anatomically demonstrative reduction in Ventral Medial Prefrontal Cortex (vmPFC) volume.

Attachment & the default mode network, mirror neuron system & the neuromodulation of neurocircuitry. Neuroimaging studies distinguish between PTSD and Borderline Personality Disorder (BPD) mainly by the level of structural and functional change from controls, with Borderline Personality Disorder (BPD) showing greater change than PTSD from controls (Carter & Keverne, 2002; Insel & Young, 2001; Reiner & Spangler, 2010). Also, regarding Complex PTSD and Borderline Personality Disorder (BPD), the distinction appears to reside with the relatively long-term effects of childhood attachment-related experience upon the neurotransmitter, neuropeptide, and hormone secretory systems (Bandelow et al., 2010), with Borderline Personality Disorder (BPD) representing the most severe failure of the human stress response system to restore physiological homeostatic processes (Yehuda & LeDoux, 2007).

Goodman (2012) suggested distinguishing simple PTSD from Complex PTSD by referencing how physicians distinguish between simple and complex seizures (presence or loss of consciousness) and fractures (presence or absence of skin breakage). In this same basic way developmental, dosage, and other diathesis variables could be developed to distinguish PTSD, Complex PTSD and Borderline Personality Disorder (BPD) along a continuum.

Borderline Personality Disorder (BPD) would fall on the more severe side of the gamut and Complex PTSD falling somewhere between PTSD and Borderline Personality Disorder (BPD) when it comes to overall effect on psychic structure. The most important independent variables contributing to the development of Complex PTSD and Borderline Personality Disorder (BPD) most likely involve early childhood abuse and a resulting insecure and/or disorganized attachment (Hipwell, Goossens, Melhuish, & Kumar, 2000; Muller, Sicoli, & Lemieux, 2000; Schmid et al., 2013; and, Van Ijzendoorn, Schuengel, & Bakermans-Kranenburg, 1999).

Research has demonstrated that Childhood Sexual Abuse (CSA) correlates with Borderline Personality Disorder (BPD) 80-90% of the time (Herman, Perry & van der Kolk, 1989; Linehan, 1993, p. 49; Sar, 2010, p. 5; van der Kolk, 2014, p. 140). Anxious and disorganized attachment also disproportionately populate Borderline Personality Disorder (BPD) diagnoses (Fonagy & Batemen, 2008; Fonagy, Target, Gergely, Allen, & Bateman, 2003; Fossati Feeney, Maffei, and Borroni, 2014). Thus, a variable likely to lean in favor of distinguishing Borderline Personality Disorder (BPD) from Complex PTSD and PTSD involves anxious and disorganized attachment and/or Childhood Sexual Abuse (CSA).

Attachment-related childhood trauma undermines normal functioning of the social cognitive neurocircuitry of both the brain and body (Dore et al., 2015). This means that both intrapersonal and interpersonal neurocircuitry are profoundly affected by such trauma. Molnar-Szakacs and Uddin (2013) suggested that one's neural sense of self emerges out an integration of input from the Default Mode Network (DMN) (where "psychological self-relevant processing" takes place) and the Mirror Neuron System (MNS) (where "physical self-recognition and embodied simulation" of others takes place) through "interaction nodes" located in the Anterior Insula (AI) and the Posterior Cingulate Cortex/Precuneus (PCC/Prec). The following figure highlights these key brain systems:

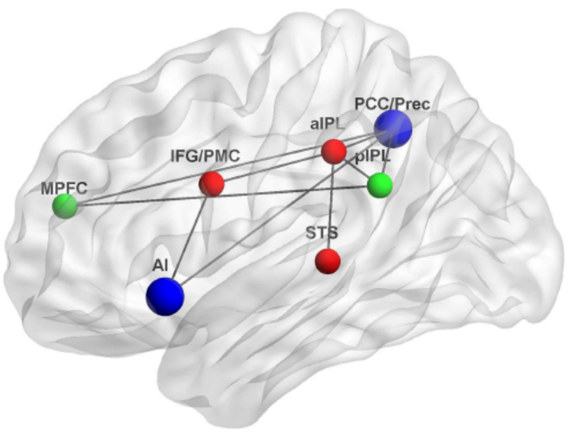


FIGURE 1 | Functional connections underlying interactions between the DMN and MNS. The DMN, a system for psychological self-relevant processing and mentalizing, and the MNS, a system for physical self-recognition and embodied simulation, may interact through densely connected "hubs" such as the AI and PCC/Prec. Green, DMN nodes; red, MNS nodes; blue, interaction nodes; MPFC, medial prefrontal cortex, pIPL, posterior inferior parietal lobule; PCC/Prec, posterior cingulate cortex/precuneus; IFG/PMC, inferior frontal gyrus/premotor cortex; aIPL, anterior inferior parietal lobule; STS, superior temporal sulcus; AI, anterior insula; Gray lines indicate possible functional connections based on (Iacoboni et al., 2001; Lou et al., 2004; Iacoboni and Dapretto, 2006; Sridharan et al., 2008; Schippers and Keysers, 2011). Figure was created using BrainNetViewer (http://www.nitrc.org/projects/bnv/).

Figure 3.6. Why Experiential Treatments May Improve Attachment Related Sequelae: Areas of the Brain Associated with Representations of Self and Others. Adapted from Molnar-Szakacs, I., & Uddin, L. Q. (2013). Self-processing and the default mode network: Interactions with the mirror neuron system. *Frontiers in Human Neuroscience, 7*, 571.

Attachment has been conceptualized as energy and information regulatory strategies with accompanying activation patterns of underlying neurocircuitry (Costello, 2013; Cozolino, 2010; Fraley & Shaver, 2000; Perry, 2014; Siegel 2010, 2012). Moreover, with avoidant attachment, which Kris exhibited and which develops as a result of childhood adaptation to neglectful/dismissive primary caregiving, there is a more or less rigid bias in favor of left brain intellectualization and idealization of one's past (Siegel, 2010). This inflexibility of mind associated with avoidant attachment style has been identified as a major predisposing risk factor in the development of PTSD (Yehuda & LeDoux, 2007).

Likewise, Rauch, Shin, and Phelps (2006) recently determined that PTSD involves a conditioned fear response overlaid upon such diathesis variables as insecure attachment, prior trauma, and amygdala hyperactivity, Ventral Medial Prefrontal Cortex (vmPFC) hypoactivity, and hippocampal impairment. Thomaes et al. (2011) recently replicated Rauch et al.'s (2006) findings with a sample of 28 Complex PTSD and 21 control patients without Complex PTSD.

Neurocircuitry of borderline personality disorder (BPD). Converging information from numerous neuroimaging studies regarding Borderline Personality Disorder (BPD) implicates the same basic neurocircuitry as that associated with PTSD/Complex PTSD (Krause-Utz, Winter, Niedtfeld, & Schmahl, 2014). However, differences do lie in activating triggers. PTSD tends to begin with reminders of trauma; whereas with Borderline Personality Disorder (BPD) floods of emotion tend to be activated with perceived interpersonal abandonment or rejection (Ford & Courtois, 2014).

Additionally, PTSD, Complex PTSD, and Borderline Personality Disorder (BPD) alike involve the following: (a) A strong potentiation of evaluative circuits (Dore, 2015); (b) A hyperactivation of the amygdala and a concomitant hypoactivity of Ventral Medial Prefrontal Cortex (vmPFC)) regulatory circuits (Yehuda & LeDoux, 2007); and, (c) Interhemispheric structural abnormalities resulting in right-left intercommunication imbalances across the anterior corpus callosum between the left and right Anterior Cingulate Cortex (ACC) (Rusch et al., 2010). Borderline Personality Disorder (BPD) patients show significantly reduced hippocampal volume when compared to controls (Marchnik & Schmahl, 2010).

Early neuroimaging studies found reduced hippocampal volume in PTSD patients as well; however, subsequent studies demonstrated that only the brains of people diagnosed with Borderline Personality Disorder (BPD) and not PTSD have reduced hippocampal volumes (Yehuda & LeDoux, 2007). As pointed out above, the

Hippocampus is involved in the processing of situationally bound representations (S-reps) into contextualized autobiographic learning and memory (C-reps) (Brewin et al., 2010; Grenell, 2008; Yehuda & LeDoux, 2007).

Thus, neurobiological substrates appear to support the idea that PTSD, Borderline Personality Disorder (BPD), and Complex PTSD all involve an imbalance of power that tips in favor of Amygdala centered evaluative neural activity, as opposed to Medial Prefrontal and Hippocampal centered regulatory processes of the social brain (Krause-Utz et al., 2014; Mauchnik & Schmahl, 2010).

Kris fell within the Complex PTSD range of Goodman's (2012) proposed trauma spectrum. Her mental processes appeared to fall between those associated with PTSD and Borderline Personality Disorder (BPD) and, interestingly, her attachment style as measured by the Adult Attachment Interview (AAI) was primarily disorganized with a *cannot classify*–at times anxious with regard to attachment and at other times dismissing (George, Kaplan & Main, 1996—for administration of the AAI; Main, Goldwyn, and Hesse, 2002—for scoring of the AAI).

Measuring Complex PTSD with Kris: Structured Interview for Disorders of Extreme Stress (SIDES)

I administered the Structured Interview for Disorders of Extreme Stress (SIDES) to Kris (Pelcovitz, van der Kolk, Roth, Mandel, Kaplan & Resick, 1997, p. 12). Her scores were significantly elevated on each of the six Complex PTSD criteria, corresponding with my own clinical observation, and confirming her Complex PTSD diagnosis.

1. ***Alterations in Regulation of Affect and Impulse control:***

Kris' scores indicated that she has clinically significant problems with the following:

A. ***Affect regulation***. She reports that when she gets upset she can't calm down and the problem comes back to her "hour after hour."

B. ***Difficulty modulating sexual involvement***. Kris reports being driven to engage in compulsive sexual activities where she doesn't feel like she has a choice and, at the same time, feeling like she can't stand it when she is touched. Clinical observation supported the fact that Kris has significant problems with affect regulation.

2. ***Alterations in Attention and Consciousness:***

Kris' scores indicated that she also has clinically significant problems with the following:

A. ***Amnesia.*** She reports having no memory for years of her childhood.

B. ***Transient Dissociative Episodes and Depersonalization***. She reports having trouble keeping track of her schedule and of going into her own world and not letting others into it.

When talking about childhood amnesia it is important to define what is meant by childhood memory and, therefore, what has been forgotten or, perhaps, never encoded in the first place. Nelson (1993) wrote that autobiographical memory "is specific, personal, long-lasting, and (usually) of significance to the self-system" (p. 8). Autobiographical memory is distinguished from a script or generic event memory which simply says "things happen this way" (Ibid). Indeed, a lack of childhood memory is characteristic of a dismissing state of mind with regard to attachment (Main, et al., 2002). However, most people only remember back to age 3 or 4 (Ibid).

Kris told me on several occasions that she was troubled by her lack of memory for childhood. She mentioned, one time, wanting me to use sodium amytal to try and recover them. Her trouble with keeping track of her schedule and going into her own world and not letting others in also caused her anxiety. Until about 18 months into therapy, when she began utilizing prescribed breathing techniques and walking regularly at least 5 times a week, Kris commonly remained fixed on a sofa for days on end without purposeful activity or meaningful interactions with other people.

3. ***Alterations in Perception of Self:***

Kris' scores indicated that she had clinically significant problems with the following:

A. ***Ineffectiveness.*** Kris had the feeling that basically she has "no influence on what happens" to her in her life. As pointed out above, sometimes she didn't keep appointments, go out, return calls, or take care of her basic physical and emotional needs.

B. ***Permanent Damage.*** Kris felt that there was something wrong with her and that she was "a permanently damaged person."

C. ***Nobody Can Understand.*** Kris felt isolated and different from others, as if she was "from another planet and didn't belong anywhere."

4. ***Relationship Difficulties:***

Kris' scores indicated that she had clinically significant problems with the following:

A. ***Inability to Trust.*** Kris avoided relationships with others. She did this by not returning calls, not replying to letters, and not talking to others.

B. ***Revictimization.*** Kris felt that she was a trauma magnet because traumatic experiences kept happening to her. She has also been hurt repeatedly by people she loved and thought she could trust. Most specifically, until quite recently when her ex-husband moved to Oregon with her son (15), Kris had felt extremely victimized by him.

5. ***Somatization.***

Kris' scores indicated that she had clinically significant problems with the following:

A. ***Cardiopulmonary Symptoms.*** Kris reported that she suffered from dizziness which her doctors could not explain. This condition was serious enough to affect her daily life.

B. ***Conversion Symptoms.*** Kris had chronic pain conditions, including back pain and shoulder pain.

6. ***Loss of systems of meaning and sustaining beliefs:***

Kris' scores indicated that she had clinically significant problems with the following:

A. ***Despair and Hopelessness.*** Kris felt hopeless and pessimistic about the future. She felt like a condemned convict whose time has run out. She felt that she had no purpose or work, making her life seem pointless.

B. ***Loss of Previously Sustaining Beliefs.*** Kris' life had lost meaning. She had no rational reason for living and was disillusioned with the religious beliefs she grew up with that had previously brought her security and pleasure.

I will explore each of these 6 constructs in detail within a developmental context in the next section.

IV.

Application of Complex PTSD Criteria to Kris in Treatment

In this section of Kris' case study, I discuss Kris' treatment in each of the six domains of Complex PTSD. Kris' personality represents a developmental outcome. Three key areas of treatment concern emerged through the course of meeting with Kris: learned helplessness and its impact upon Kris' coping abilities; autonomic dysregulation; and somatic awareness.

Kris' childhood and her long and abusive marriage resulted in functional adaptations she had made at the time in order to survive. Over time these adaptations resulted in neurobiological processes which outlived their adaptive function. The coping strategies she had used as a child to survive led to frustration and confusion in adulthood.

Kris' characteristic avoidance and extreme low sense of self-esteem developed adaptively through the course of a childhood riddled with Interpersonal Partner Violence (IPV)/Domestic Violence (DV). Later, she married an abusive man who bullied and abused her much like her father had when she was a child. Her husband Earl engaged in demeaning and violent behavior throughout their marriage, which assaulted Kris' ethical and physical boundaries. For example, at one point Earl raped her from behind while she was passed out from taking too many sleeping pills. On another occasion, he pressured her into having sex with another man in front of him—Kris still felt deeply violated by both these events. By the time he initiated their divorce, Kris genuinely believed he had omnipotent power over her.

Learned helplessness & coping mechanisms. In 1967, preliminary research by Overmier and Seligman introduced "Learned Helplessness" (LH) to psychology (p. 33). Conducting controlled experiments they subjected 32 test dogs to inescapable shock and found that a Learned Helplessness (LH) ensued, where the same test dogs learned not to attempt escape, even when escape was possible. This phenomenon was later extended to "cats, fish, rats and man" (Maier & Seligman, 1976).

Significantly, regarding Kris, she had learned to be helpless throughout her life as pointed out above. Lacking active coping skills through having learned to be helpless, her ability to cope with life's problems was seriously compromised. She could not problem solve, regulate her emotions, express her needs to another, reframe or even accept her problems. By the beginning of therapy, Kris relied on passive disengagement coping strategies such as denial, avoidance, and distraction. Her dominant behaviors included physical inactivity, overuse of prescription drugs, and watching inordinate amounts of television (Connor-Smith, Compas, Wadsworth, Thomsen & Saltzman, 2000).

As set forth in the following table, Kris' scores on the *Responses to Stress Questionnaire (Family Conflict Version) (RSQ-FCV)* (Connor-Smith et al., 2000) reflected this general lack of adaptive coping–a score of 1 indicating no use of the coping mechanism, and a score of 4 indicating regular use.

Type of Coping Used by Kris		Kris' Averaged Scores on RSQ-FCV
Primary Control Engagement Coping:		
	Problem Solving (Questions 3, 17, 24):	2 – Apologizing appears to be her primary problem solving tool.
	Emotional Regulation (Questions 21, 45, 48):	2.5 – Seeing her therapist and using breathing exercises to calm down appear to be her primary emotional regulation tools at this time (at 1 and ½ years into treatment)
	Emotional Expression (Questions 7, 20, 32):	2 – Listening to

		music, exercising and seeing me are her primary modes of emotional expression.
Secondary Control Engagement Coping		
	Positive Thinking (Questions 19, 50, 52):	1.3 – Kris struggles with extremely negative thinking. See above (p. 23) where her Psy-5 score for neuroticism puts her in the 91st percentile (Figure 2.4).
	Cognitive Restructuring (Questions 34, 36, 39):	2.3 – She is beginning to feel and think that something good can come of her life circumstances.
	Acceptance (Questions 8, 13, 29):	2.3 – She is beginning to learn to go with the flow with things she cannot change.
Primary Control Disengagement Coping		
	Avoidance (Questions 1, 15, 27):	2 – Kris has been avoidant most her life but she does not resonate with avoidance—she eschews it.
	Denial (Questions 9, 41, 56):	1.6 – Denial is definitely not Kris' style. In fact, she generally prides herself on being realistic which informs her neuroticism score mentioned above.
Secondary Control Disengagement Coping		
	Wishful thinking (Questions 5, 11, 23):	2.3 – Kris does engage in the fantasy that someone will just come and get her out of the challenges

		of her life.
	Distraction (Questions 30, 43, 54):	2.6 – Kris uses distraction to find relief from her problems. Her primary distraction is television which is maladaptive in the amounts she watches. She also uses adaptive methods of exercise and listening to music.
Involuntary Engagement of Trauma		
	Rumination (Questions 31, 40, 51):	1.5 – This doesn't appear to be a problem for Kris.
	Intrusive Thoughts (Questions 6, 18, 25):	1.8 – This doesn't appear to be a problem for Kris.
	Physiological Arousal (Questions 2, 12, 26):	2 – Kris has begun to identify and incorporate physiological arousal into her sense of self without immediately rejecting all negative feelings.
	Escape (Questions 10, 14, 22):	1.3 – Escape is not something Kris uses in coping with her family stressors.
	Inaction (Questions 42, 46, 49):	3.6 – The freeze response is huge for Kris which is probably related to learned helplessness.

Table 4.1. Kris' Coping Style as Determined by her Self-Report Endorsement on the RSQ-FSV. Adapted from Connor-Smith, J. K., Compas, B. E., Wadsworth, M. E., Thomsen, A. H., & Saltzman, H. (2000). Responses to stress in adolescence: Measurement of coping and involuntary stress responses. *Journal of Consulting and Clinical Psychology, 68*(6), 976-992. doi:10.1037/0022-006X.68.6.976, p. 980.

As a chronic victim of Interpersonal Partner Violence (IPV)/Domestic Violence (DV) from the time she was a small child and throughout her childhood, Kris experienced daily involuntary stress responses. These disturbing states undermined adaptive information processing/executive function neurocircuitry resulting in a chronic deep seated sense of learned helplessness (Bargai, Ben-Shakhar & Shalev, 2007; Connor-Smith et al., 2000; Ogden et al, 2006).

Autonomic regulation, polyvagal theory, & breathing exercises. Traumatized people tend to present with autonomic dysregulation and a lack of differentiated awareness of the distinction between sensations from inside and outside the body, emotions, and cognition (Ogden et al., 2006; Siegel, 2012; van der Kolk, 2014). We used breathing exercises to begin the process of helping Kris gain somatic awareness which, neurologically speaking, engaged the insula and brought about an integration of the Default Mode Network (DMN) and the Mirror Neuron System (MNS) described above (Molnar-Szakacs & Uddin, 2013).

Breathing can affect one's level of energy. By focusing on the intake of breath a client can upregulate her level of arousal, and by focusing on the outbreath she can downregulate her level of arousal (Brown & Gerbarg, 2012; Ogden et al., 2006). Moreover, regulating arousal in this way is linked to heart rate and can help a client stay within a window of optimally adaptive physiological arousal, both in session and out of session. In this window of autonomic arousal, the social engagement system (i.e. neck up autonomic processes) remains dominant and relationships become much easier to establish and maintain (Porges, 2009).

Porges (2009) described his polyvagal theory and the social engagement system as an evolution-based hierarchical system of defense, which begins with neck-up processes mediated by the myelinated ventral vagal system. Should that system fail to adequately accommodate a perceived threat, the Hypothalamic, Pituitary, Adrenal (HPA) Axis activates and a fight-or-flight defense response ensues by activating the sympathetic nervous system with the release of stress hormones. Finally, if this Hypothalamic, Pituitary, Adrenal (HPA) Axis defense is perceived as failing, reversion to the oldest defense of all occurs, i.e. tonic immobility which is mediated by the phylogenetically most ancient unmyelinated dorsal vagus along with endogenous opioids and peptides (Lanius, 2014).

Phase based treatment, somatic awareness & the window of tolerance. Cloitre et al.'s (2012) *Expert Consensus Treatment Guidelines for Complex PTSD in Adults* pointed out that 84% of expert clinicians treating Complex PTSD utilized and recommend a phase-based treatment plan.

In keeping with the *Consensus Treatment Guidelines,* I used a phase-based model to help Kris feel more secure and stable before attempting to work through traumatic material. This involved use of my own emotional strength and stability to provide scaffolding/modeling and emotional containment for her.

In our therapy sessions, I generally listened, engaged in my own version of Rogers' (1961) unconditional positive regard, and talked with Kris on a peer-to-peer level that assumed her superiority of wisdom over mine regarding decisions about her life. I taught her breathing techniques and healthy ways of dealing with stress, such as regular exercise. As discussed below, the breathing and exercise turned out to be key interventions in her recovery/posttraumatic growth.

Without sufficient resourcing, processing traumatic memory with Complex PTSD patients carries a high risk of re-traumatizing the patient. Indeed, throughout treatment, therapists working with trauma victims have to keep what Ogden et al. (2006) citing Siegel (1999), called the "window of tolerance" in mind:

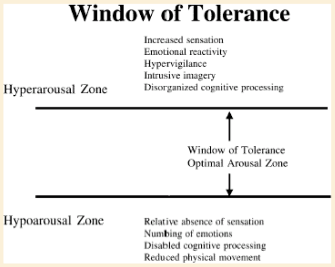


Figure 2.1. The three zones of arousal: A simple model for understanding the regulation of autonomic arousal.

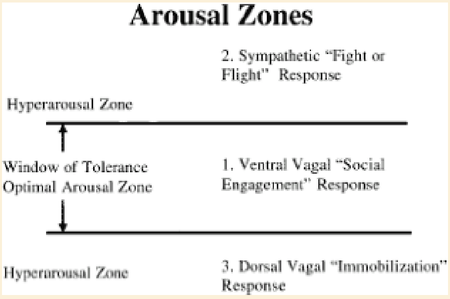

Arousal Zones
2. Sympathetic "Fight or Flight" Response
Hyperarousal Zone
Window of Tolerance
Optimal Arousal Zone
1. Ventral Vagal "Social Engagement" Response
Hyperarousal Zone
3. Dorsal Vagal "Immobilization" Response

Figure 2.2. The correlation of the three arousal zones and the polyvagal hierarchy.

Figure 4.1. Window of Tolerance when treating patients with trauma. Adapted from Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy*. New York: W. W. Norton & Company, Inc., p. 25, 29 (See also Siegel, 1999).

Sometimes Kris came to sessions hyper-aroused/emotionally under-modulated. During those times I engaged in containing activities, for the most part using my own relaxed attitude to be with her and allow her to have her feelings. I vividly remember one session where she came into the office, slumped her head forward over her knees, and sobbed for half an hour. On other occasions later in treatment, I started walking with her through a park near my office, feeling that she was hypo-aroused, in general, and used those walks to demonstrate and teach her how to engage a mindful attitude while walking.

For about a year and a half, Kris and I made what appeared to be little progress. Indeed, it seemed our treatment was marked more by regress than progress. Imperceptibly, however, behind the scenes her underlying neurocircuitry was rewiring and her neuro- and physio-modulatory systems established a foundation for progressing from Phase I of treatment (stabilization) into Phase II (reprocessing trauma memory). This case study undoubtedly increased my normal level of commitment to a client, in that I actively studied her condition and thought about her all the time.

My constant thinking about Kris increased my attunement with her and resulted in a positive transference which involved my becoming a parent-like figure and her feeling "seen." A child's feeling seen and safe is foundational to the development of secure attachment with its characteristic flexibility of mind and ability to engage in metacognition/reflective function (Fonagy, Target, Steel, & Steele, 1998; Main, Goldwyn & Hesse, 2002).

In these final pages, I outline research further informing my psychotherapeutic work with Kris relative to her ongoing dynamic adaptation to her environment in the following six domains related to her diagnosis as having Complex PTSD: 1. Affect Regulation/Impulse Control; 2. Attention and Consciousness; 3. Perception of Self; 4. Relationships with Others; 5. Somatization; and, 6. Loss or Lack of Previously Sustaining Systems of Meaning.

1. Regulation of Affect & Impulse Control: Attachment and Mentalization, Metacognition & Mental Flexibility

Regulation of affect. Being able to harness one's emotions toward adaptive behavior is a key element of successful living / adaptation. Such regulatory ability is founded upon an underlying neurophysiological regulation established early in life, particularly in connection with one's first caretakers (Schore, 1997a; Siegel, 2012).

Attachment. Caretaking that provides a secure base (Bowlby, 1988), or, as Erikson (1987) put it, that imparts to an infant a basic trust in self and others, provides a gift that gives throughout the child's life. Secure attachment affords a growing child a sense of autonomy which, along with a basic trust in self and others, acts as an ultimate buffer in life and creates a launching pad from which to explore the world and be successful (Bowlby, 1988 and Erikson, 1987). Mikulincer, Shaver, and Solomon (2015) outlined several benefits securely attached children enjoy. They have positive self-images, can calm or soothe themselves when stressed or upset without resort to drugs or alcohol, and generally enjoy good equality-based, close relationships. Such children also tend to be curious, like to learn, and trust others.

The complexities of modern life create unique stressors (Schreier & Evans, 2003) which, generally speaking, securely attached people successfully negotiate in spite of having a nervous system more fit for the jungle than the office. That success likely flows from a fully developed Ventral Medial Prefrontal Cortex (vmPFC) and healthy regulatory processes of the brain which develop most saliently in the first 18 months of life when the infant is cared for by a secure primary caregiver in a relatively stable and peaceful home, but continues to develop within the context of emotionally nurturing and safe environments throughout the lifespan (Fransson, Granqvist, Bohlin & Hagekull, 2013; Walton, 2010).

Mentalization/metacognition. Key emotional and social intelligence skills such as theory of mind/metacognition/mentalization and flexibility of thought and expression centrally involve processes of the Ventral Medial Prefrontal Cortex (vmPFC) which develops early on in life where the developing child consistently experiences loving and involved caregivers (Allen, 2013; Chiesa & Serretti, 2010; Fonagy & Bateman, 2008; Fonagy, Target, Steele & Steele, 1998). Metacognition and flexibility of mind are two natural products of secure attachment (Main, et al., 2002), which were major targets of therapy with Kris.

It was and continues to be a constant therapeutic goal of mine to help Kris become more secure, self-aware, and open to experience (Benoit, Bouthillier, Moss, Rousseau, & Brunet, 2010). We engaged in psychoeducation about attachment styles, administered the Adult Attachment Interview (AAI), and discussed the results of her interview. I also helped Kris set her intention to become more secure in her relationships with herself and others.

Flexibility of mind/executive function & secure attachment. The presence or absence of security in one's earliest relationships and environment becomes embedded within the function and structure of the brain, including how the mind directs the flow of energy and information in the brain (Siegel, 2012, pp. 91-144). Openness to experience and extraversion were recently linked to secure attachment in a 13 year longitudinal study conducted by Fransson, Granqvist, Bohlin and Hagekull (2012). Fransson et al.'s (2012) study also linked McCrae & Costa's (2003) extraversion "preference for social interaction and lively activity" and openness to experience "receptiveness to new ideas, approaches and experiences" (p. 35) to secure attachment.

The "relation between attachment and personality can be understood in terms of relating to others, exploring the surroundings, and regulating emotions and affects" and a growing consensus emphasizes the partial influence of "nurture as represented in attachment" upon personality development (Fransson et al, 2013, p. 235).

Another way of describing secure attachment and openness to experience involves an expansion of bandwidth in information processing and flexibility or agility of mind (Siegel, 1999, 2013), which defies localization in neuroimaging studies of executive function (DeYoung et al., 2010; Worthman, Plotsky, Schechter, & Cummings, 2010). Although metacognition has been associated with general intelligence (Livingston, 2003), a more measured appraisal might correlate secure attachment with social intelligence (Fonagy & Target, 2006).

Clinicians often talk about restoring assymetric optimal function or balance to right/left hemispheric and top/bottom processes of the brain in therapy. An example of the need for such balancing is seen in the distrust trauma survivors have in their bottom-up processes which are often repressed, dissociated, and ignored in decisionmaking (Trevarthen, 2009). Kris certainly suffered from this when it came to any discussion of her mother and stepfather—at least until recently within the last four months. It took more than a year and a half before she began to open up about her parents and talk about them without extreme idealization involving an attempt to shut down right hemispheric processes of the brain. Idealization makes sense too from a survival stance of the child. Children in abusive homes are taught with extreme threats and punishment to present a normal front to others outside the family including their friends, teachers and religious institutions.

Dunkley et al. (2015) recently found that PTSD patients suffer a significant right-sided bias in the right parietal cortex (a key area in cognitive flexibility) when compared to controls. This bias is related to PTSD patients having greater difficulty than controls in shifting attention.

Lansing, Amen, Hanks, and Rudy (2014) similarly published a recent study demonstrating that Eye Movement Desensitization Reprocessing (EMDR) decreased right side cortical activity and increased Dorsal Lateral Prefrontal Cortex (dlPFC) activity when compared with controls, replicating prior studies correlating depression with hypoactive Dorsal Lateral Prefrontal Cortices (dlPFCs) (Goel & Dolan, 2003, 2003a).

Moreover, Gribneau (2006) similarly found that participants with unresolved attachment responded to cemetery images with involuntary Anterior Cingulate Cortex (ACC) and right biased asymmetric Parietal-Occipital Electroencephalogram (EEG) activity (pp. 11, 85). Other recent neuroimaging and Electroencephalogram (EEG) studies support the idea that Eye Movement Desensitization Reprocessing (EMDR) and other brain-body experiential treatments assist clients with affect dysregulation by restoring/optimizing neural synchronization in large scale networks of the brain (Dunkley et al., 2015; Farb, 2007).

Kris suffered from these imbalances and we used EMDR (Shapiro, 2007) early on and EMDR-rooted treatments by Grand (2013) and Schwarz (2009) later in treatment to improve neurosynchrony and to increase attentional and integrative processes of her brain. We also worked on restructuring the regulatory processes of her brain using mindfulness (Chiesa & Serreti, 2010) and light exercise (Kramer & Erickson, 2007; Robinson et al., 2015; Voss, Nagamatsu, Liu-Ambrose, & Kramer, 2011).

Secure attachment and mindfulness. Several writers and clinicians have noted how mindfulness can move an otherwise insecurely attached adult to secure attachment (DiNoble, 2009; Pepping, Davis, & O’Donovan, 2015; Ryan, Brown, & Creswell, 2007; Siegel, 2007, 2012). Shaver, Lavy, Saron, and Mikulincer (2007) called for research on this issue and Wang (2012) answered. His study (n=300) found that mindfulness encompasses key convergent constructs such as autonomy, sense of self, others, metacognition, and reflective function, as secure attachment (Wang, 2012).

Shaver et al. (2007) explained that Rogers’ (1961) fully functioning person also described both secure attachment and mindfulness. Such a person possesses an increasing openness to experience rather than defensiveness; an increasingly existential life, lived with awareness, in which one allows her true self to emerge from her experience (pp. 188-189); and an increasing trust in her own organism rather than reliance on a code, church, book, or other outside guides (see also Kohlberg, 1963, 1973 and 1977).

Moreover, secure attachment and mindfulness also correlate with less reactivity to stress; less defensive behavior; improved health; increased regulation of self; better grades or performance at work; relationship improvements; and more flexible coping strategies in relationship conflict (Shaver et al., 2007, p. 265).

The appeal of mindfulness to restore impaired neural circuitry associated with childhood trauma and neglect makes sense from an attachment viewpoint. Kris and I used mindfulness to her benefit. Our goal was to help Kris enter a life characterized by autonomous engagement. This involved an “open receptivity” to her “internal states and external conditions” and an attitude of active curiosity about “whatever is” (Deci, Ryan, Schultz & Niemiec, 2015). In this regard, mindfulness involved a secondary control engagement coping strategy for things she could not change (Connor-Smith et al., 2000). One of Kris’ chief complaints had been that she could not change negative aspects of her personality and life. Interestingly, as she began accept parts of herself she had previously loathed, she found the ability to change.

Impulse control: Attentional & intentional processes underlying executive function. A child’s ability to control her attention relates to the early developmental task of controlling distress, initially through the caregiver’s soothing and rocking the infant when distressed (Posner & Rothbart, 2000). The developmental outcome of the quality of this childhood relational dynamic contributes to an emerging neural circuitry capable of Ventral Medial Prefrontal Cortex (vmPFC) driven top down and across executive function/cognitive regulation of various brain systems including the Parietal Associational Cortices and Subcortical emotional bottom up impulses (Ibid; see also, Davis, Moss & Nogin, 2015).

Until recently, Kris struggled much with impulse control. She couldn’t stop smoking and overused prescription anti-anxiety medication. But as she began to gain a foundational physiological regulation over her body, her ability to engage in more adaptive prosocial behavior conditioned upon normal impulse control increased. For example, when her teenage son (the one who moved with his Dad to Oregon) recently tried to triangulate her (Hall, 2013, p. 242) into rescuing behavior (Karpman, 1968), Kris established an appropriate boundary and thereby avoided begin drawn into her son’s drama. Such autonomy would have been impossible for her a year ago.

Kris’ Adult Attachment Interview (AAI) scores and subsequent information gathered during clinical sessions identified that she not only witnessed severe Interpersonal Partner violence (IPV)/Domestic Violence (DV) by her father upon her mother at an early age. She also had a confusing relationship with her mother who appeared competent to the public but privately, Kris felt the need to protect her from a very early age. Regarding her father, Kris remembers feeling marginalized and characterized her relationship with her father as one where she tried to make something of it.

Also regarding her father Kris said it was all about the money for him—referring to child support. Her father took her mother to court a few times attempting to get custody for the sole purpose of reducing his support. Kris’ early adaptation to parental rejection was hardness and anger–which she still uses in derogating her father, calling him a “crappy dad” and an “absolute asshole;” however, she also sometimes idealizes him, and particularly idealizes her mother–who has taken on saintly proportions in Kris’ mind even though her mother was at times rejecting and at other times over-involved in

Kris' life. Such over-involvement took the form of expecting Kris to achieve much in life—which is a real disappointment to Kris, herself.

It appears that Kris had been able to repress and overregulate her childhood trauma until Kris, her now ex-husband, and their then 8-year-old daughter moved away from Kris' parents for the first time. This was when she experienced her first panic attack. It was also about the time she was involved in a severe car accident which disabled her with a spinal injury. At that time she developed a deep sense of defectiveness and depression.

Importantly, when Kris was 5 years old, her maternal grandfather committed suicide by hanging himself in the barn after having been diagnosed with lung cancer. Heritability figures for suicide are high "with genes explaining 17-55% of the variance in suicide attempts and 30-80% in major depression and bipolar disorder" (Barker et al., 2010, p. 831).

Mindfulness training, light exercise, breathing exercises, EMDR, and use of the Schwarz' (2009, 2017) Comprehensive Resource Model to deal with intrusive images–particularly those associated with finding her son's arm after it had been cut off in a motor vehicle accident–improved Kris' affect regulatory skills.

Importantly, Kris herself devised what I believe was her most effective intervention of all. In connection with her son's arrest, she started walking about two miles a day as a way of doing something other than perseverating about the injustice of it all. About five months ago, Kris' son was arrested and taken into custody on charges of child abuse. She came up with walking around the jail 7 times a week after the fashion of the Ancient Israelites who circled Jericho before its impenetrable walls miraculously fell (Hebrews 6:15; Joshua 6:15).

Recent research articulates exercise as a mediating factor improving attentional capacity, regulatory control of the brain, mood improvement, neurotransmitter function, and neural plasticity (Kramer & Erickson, 2007; Robinson et al., 2015; Voss, Nagamatsu, Liu-Ambrose, & Kramer, 2011). Kris' walking accelerated her improvements in spite of the stress associated with her son's arrest and detention pending trial.

2. Attention & Consciousness & Kris' Ability to Focus

One's ability to maintain focused attention to tasks supporting a higher goal and to maintain that attention in spite of potential distractions potentiates success and flow (Csikszentmihalyi, 1990). Compromised attentional capacities sabotage goals; whereas, the ability to focus encourages success and achievement (Wallace, 2006, p. 13). Relevant to Kris, Allen (2013) recently wrote regarding the treatment of clients such as Kris who suffer attachment related trauma that helping such clients with mindful awareness lays down a foundation of awareness which then enables relationship growth and improvement, namely metacognition and empathy (p. 252).

Kris had difficulty maintaining focus. She complained about having forgotten her early childhood, perhaps reflecting a sad or frightening time when learning and curiosity were squelched by an interplay of genetics and environment (Ford, 2009, pp. 31-32; Siegel, 2012, p. 126). She used to lose track of her schedule and retreat into her own world. From these symptoms I hypothesized that her normal exploratory system had been compromised, and her chronic efforts to control negative affect had led to exhaustion and hypoactivity in her Ventral Medial Prefrontal Cortex (vmPFC) interfering with her ability to focus (Panksepp, 1998, 2011; Selye, 1946, p. 141).

Cognitive restructuring was only half the therapeutic equation with regard to Kris' ability to remain focused and present in the moment. Stahl and Goldstein's (2010)

Mindfulness-Based Stress Reduction Workbook helped Kris gain greater presence in the here and now of her experience, as did our practice with breathing exercises in session. With time and practice she strengthened her ability to focus, which was key to her recovering motivated and goal-directed behavior. An example of such goal-directed focus and behavior came up recently when we went for a walking session. Kris pointed out that she had set her bills up with bill pay, and had paid all her bills in about 10 minutes. For her, that was major progress: not only had she regained the ability to focus and pay her bills online, she had learned new technology to accomplish it.

3. Perception of Self and Kris' Deep Sense of Defectiveness

Early in treatment Kris said she feels her life is pointless because she feels so helpless. Her input and effort over the years, especially while married to Earl, had taught her that she had "no influence on what happened to her in her life." Kris had learned not to bother keeping appointments, going out, returning calls, or taking care of her basic physical and emotional needs. She felt permanently damaged and isolated by her life circumstances.

Sometimes I had her imagine a place she found relaxing, and experience all the senses of that imaginary place. In this way she spent time at the beach and time in the forest. Other times, I had her connect with a younger self, hanging out and communicating with that self in her mind. I had her imagine herself in the womb. All of these exercises promote better mind and brain function. They also take on an experiential quality in clients' lives, enabling them to reach deep aspects of their psyche.

Disorganized attachment & Kris' perception of self. Kris' primary state of mind with regard to attachment was one of disorganization. This state of mind carried far reaching consequences for both her internal experience and her external behavioral response. Kaplan's (1987, 1987a) description of disorganized children at age six captures something of the internal world of disorganized attachment. These children were asked how they felt and what they would do in the imagined separations depicted on illustrated cards resembling the Thematic Apperception Test. As represented in the following actual answers from a 6 year old judged secure both at age 1 and at age 6, secure-resourceful children characteristically responded to an imagined separation with feelings of sadness "because they are going away." If he had permission, he could follow them. He would make sure that his Dad or Mom gave him a phone number, "just in case if something goes wrong." He might need someone to stay with him. He could go to his friend's house.

Note the difference between the foregoing and the imagination of children categorized as "disorganized/disoriented" at age 6:

Child #1: "She's afraid. Her dad might die and then she'll be by herself. Her mom died and if her mom died, she thinks that her dad might die."

Child #2: "Probably gonna lock himself up, probably in his closet."(Then what will he do?) "Probably kill himself."

Child #3: "He feels happy. Cause he likes his grandfather coming." (Jumps on back of lion and hits it) "Bad lion!" (hits it again) "Bad lion!" (p. 19)

Diamond (2004) pointed out that, by age six, the disorganized state of mind with regard to attachment organizes into two broad categories of personality when relating to the primary caregiver: punitive controlling and/or solicitous caregiving.

Tellingly, Kris became her mother's solicitous caretaker both as a child and in the last five years of her mother's life, when she and Kris' stepfather were both dying of lung cancer. To this day, Kris organizes her life themes of mostly failed efforts to care for others who either take advantage of her or wound her with rejection.

In their research at Berkeley University Hesse and Main (1999) also observed that disorganized children at 18 months take on inverting roles of behavior by 6 years of age, including punitive control of, or excessively solicitous care for primary caregivers (p. 486).

In middle childhood to late adolescence these children who were found to be disorganized at 18 months go on to develop higher incidents of externalizing and internalizing behavior than children in other attachment categories. Moreover, at the level of representation, these same children demonstrate “continuing states of fear, disorganization, and disorientation” (Hesse & Main, 1999, p. 487). Disorganized children naturally disengage active monitoring of the mind. Hypoactivation of the Prefrontal Cortex (PFC), dissociation, and a serious disruption of sense of self ensues. This process, I believe, was true of Kris.

Learned helplessness & Kris’ perception of self. As set forth in the previous section, the foregoing mental representations of developing children with disorganized attachment result in an organization of behavior by age 6. Specifically, with regard to how these children relate to their primary caretakers, they engage in punitive controlling and/or solicitous caregiving ways.

A new category of Adult Attachment called the Hostile Helpless State of Mind has emerged to describe patients like Kris, who experiences both hostile and helpless states of mind toward those she purports to love (Frigerio, Constantino, Ceppi, & Barone, 2013; Lyons-Ruth, Melnick, Patrick, & Hobson, 2007; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005).

This hostile and helpless state of mind permeates Kris’ thoughts about others, especially her thoughts about her own children. People take the experiences of their life and develop a style of life for themselves. This style of life takes the form of a drama with a *finale,* which provides an organizing effect upon one's life (Ansbacher & Ansbacher, 1956, p. 1). Early in treatment, Kris' *finale* involved getting her affairs in order to facilitate her death without leaving a mess for her children to clean up. She no longer has this goal in mind and has started thinking about what she can do for others after her son's criminal case clears up.

Faking bad & breaking bad. Kris' disorganization of attachment was demonstrated on the Minnesota Multiphasic Personality Inventory about a year into treatment, highlighting the disorganization of her personality. A local forensic psychologist wrote of her results:

> [Kris] endorsed a quite heightened number of critical items reflecting extreme clinical depression, anxiety, somatic concerns, mental confusion, persecutory ideas, and deviant beliefs. These extreme scores would most likely only be found in clinical samples of individuals who are psychiatrically hospitalized, and even most likely chronically hospitalized with severe mental disorders.

Exploring issues of malingering and factition with Kris, I determined that she was not consciously "faking bad." Another possibility I ruled out involved the notion that she used illness as an excuse to avoid responsibility and to gain manipulative control over others (Millon, 2008, pp. 28-29).

Kris' results on her MMPI-2 raise important assessment issues when dealing with Complex PTSD patients in forensic settings. Adult survivors of child abuse, particularly sexual abuse, endorse atypical items on the MMPI-2, producing profiles of seemingly very disordered and even psychotic patients (Wolf et al., 2009). Accordingly, Complex PTSD might best be understood or conceptualized as a personality disorder. The concept of Complex PTSD as a configuration of personality developing over the course of a client’s life reflected the gargantuan nature of Kris’ task in achieving her therapeutic goals of “breaking bad.” In entering treatment, she had embarked upon a journey which involved exploring and restructuring the neurobiological and existential depths of her personality (Nijenhuis, Van der Hart, & Steele, 2010).

Kris’ life history undermined her sense of self as an important, valuable person with something to offer. Her biological father’s ongoing abusive behavior, in particular, eroded her sense of self over years. In working with Kris it was important for me to address how she might start receiving new feedback from others as she attempted new ways of being. Serious impediments lie in the way of progress in this regard because people with low self esteem have a hard time accepting as genuine any statement that contradicts their negative self-evaluation Negative relationships with men, beginning with her biological father, have far outweighed Kris’ positive relationships. Feeling seen and felt by me helped her heal from her father’s abuse. The fact that I am a man may have increased the transference and corrective emotional experience (Alexander, 1963, 2007/1950; Srivasta and Beer, 2005).

4. Relations with Others: Kris’ Complex PTSD Relational Drama

As pointed out above, Kris avoided relationships through not returning calls, not replying to letters, and not talking to others. She also felt that she was a black hole of trauma because traumatic experiences kept happening to her. These traumatizing events generally involved emotional injury by people she loved and thought she could trust. Her primary source of feeling victimized came from her ex-husband, Earl. I noted a dramatic improvement in Kris’ mood, cognition, and behavior around the time that Earl relocated with their 15-year-old son to Oregon several months ago.

Herman (2013, May) explained what happens, relationally, to victims of child abuse using Karpman's (1968) drama triangle. For the victim of child abuse "[t]here are only three possible places to be in a relationship. You can either be the victim, persecutor or rescuer. There's no possibility of mutual relationships…" (Herman, 2013, May). Karpman's drama triangle has received empirical support (Pasternack & Fain, 1984).

Liotti (2004) also used Karpman's drama triangle to explain the internal working model of the disorganized child and his or her caregivers, involving a rapid sequence of seeing one's caregivers as persecutor and rescuer and one's self as victim. The tragedy of such relational reductionism is the loss of depth and meaning in our most prized relationships, where such qualities as altruism, mutuality, love, friendship, and parenthood are reduced to rescuing, persecuting, victimizing, and being victimized.

Siegel (2012) wrote that the mind requires connection with other minds. Oscillatory synchrony exists both in separate parts of the brain itself and within the separate brains of two or more people (Varela, Lachaux, Rodriguez & Martinerie, 2001). By definition, the embodied human mind requires relationship in the same way a triangle requires three sides. Note the following figure from Siegel (2012):

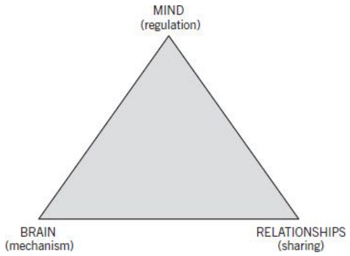


FIGURE 1.1. Three aspects of energy and information flow. Adapted from *The Mindful Therapist: A Clinician's Guide to Mindsight and Neural Integration* by Daniel J. Siegel. Copyright © 2010 by Mind Your Brain, Inc. Used by permission of W. W. Norton & Company, Inc.

Figure 4.2. Siegel's (2012) Energy and Information Flow of the Mind. Adapted from Siegel, D. J. (2010). *The mindful therapist: A clinician's guide to mindsight and neural integration.* New York: W. W. Norton & Company, p. 8.

Kris and I explored relationships extensively, discussing her relationships with her mother, her biological father, her ex-husband, her stepfather, her children, and others. Recognizing her need for healthier relationships, she made some changes. I was gratified to see that her relationship with her estranged oldest child/daughter actually became healthy. Additionally, Kris began to say "no" to her neighbor's requests for casual sex. As a result, their friendship has grown without the shame that had previously threatened their continuing affiliation.

5. Kris' Somatization

Kris accumulated a vast repertoire of psychosomatic/functional diseases over the years, most notably psychogenic (vasospastic) pain, gastroesophageal reflux disease, non-ulcerative functional dyspepsia and fibromyalgia. She also suffered from unexplained dizziness which affected her daily life. Her doctor also wrote she suffered from "conversion symptoms."

Commonly acknowledged as an important factor in the development of psychosomatic disease, stress involves a physiological response to a stressor, impacting target organs (Everly & Lating, 2013) This view of stress builds upon Selye's mid-20th century studies on homeostatic changes to target end-organs, through the effects of chronic stressors:

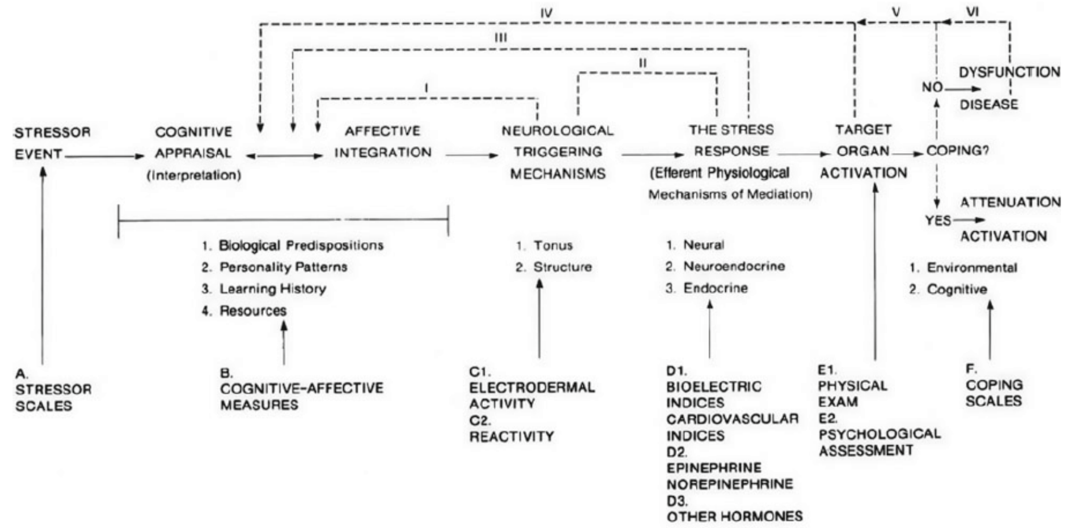


Figure 4.3. Model of psychosomatic disease processes. Adapted from Everly, G. S., & Lating, J. M. (2013). *A clinical guide to the treatment of the human stress response* (3d ed.). New York: Springer, p. 101.

A stressor event is an event or phenomenon with some inherent meaning to it, such as losing one's job, being served with a lawsuit, or being told that your wife wants a divorce. However, scenarios can be conceived where losing one's job is perceived as welcome news, the lawsuit might entail a weightier counter-complaint or claim, and a divorce may, in fact, be long overdue and a relief. The meaning and the stress level are determined by one's cognitive appraisal and affective integration of the event.

Stressors, themselves, are not "stress." The stress, itself, involves appraisal processes which necessarily implicate one's history. Particularly, unresolved trauma or loss results in heightened appraisals as implicit memories and feeling states are triggered, resulting in neuroendocrinological and hormonal stress responses (Alderson & Novack, 2002; Behrens, Li, Bahm, & O'Boyle, 2011; Gabbard & Horowitz, 2009; Gribneau, 2006).

Prior to treatment, Kris felt crushed by one crisis after another. Once she began to gain metacognitive awareness of her own responses to a perceived crisis, she could then reinterpret, rename, and tame it. This sort of cognitive restructuring occupied a central place in Kris' treatment (Everly & Lating, 2013, p. 28). Over the course of 23 months of treatment her headaches, stomach problems, and chronic pain have largely disappeared--a situation I attribute to her having someone to talk with and her own increased somatic awareness.

Once Kris began to see in new ways the phenomenology in her life, including intrusive images and feeling states, she began to break chronic patterns of stress response. For example, she began intentionally thinking of her ex-husband as "a clown." This helped her view what she had previously perceived as the cunning, manipulative, and controlling behavior of an omnipotent demigod as the antics of a fool. With this new view, her ex-husband's threats about court no longer triggered panic attacks; further, she was able to cut down on her Xanax consumption.

After 13 months of weekly and sometimes twice-weekly sessions, we began spending time cognitively assessing her perception of whatever crisis might have arisen since the last session. We also spent time evaluating how she was or was not being triggered into full-blown Hypothalamic, Pituitary, Adrenal (HPA) Axis fight-flight-freeze stress responses. Over time, her "crises of the week" diminished, her baseline anxiety levels subsided, and her unexpected panic attacks became the exception rather than the rule.

In addition to cognitive restructuring, I also taught Kris breathing exercises and interoceptive awareness of her bodily sensations. Breathing exercises were not elaborate and began with using an application downloaded to her cell phone in-session--to time the beginning and ending of a 2-minute window. I taught Kris to breathe in through her nose, listening to her breath as she inhaled, then to breathe out through her mouth, listening again as she exhaled through her mouth. Interoceptively, the sound of air coming in and the sound of the air going out sounds similar to the waves of the ocean and inherently tend to calm the human nervous system (Brown & Gerbarg, 2012; Schwarz, 2009, 2017).

6. Loss of Sustaining Systems of Meaning and Kris' Christianity

When Kris was a teenager, Christianity had provided her with a powerful sense of self and a moral compass. Equally important, the people in her church accepted and appreciated her. She belonged to this community and felt truly significant. As a young adult, however, with the removal of her children by Child Protective Services (CPS) on allegations of ritual sex abuse (subsequently dismissed), she was shunned by all her friends at the church and felt unfairly judged. Church people in the 80s were in the forefront of those quick to find Satan and demonic forces behind cultural changes. Kris' church unfortunately fell into this category at the time.

Her church's rejection reactivated state-dependent childhood memories of the rejection and betrayal by her biological father from which she had never healed, and had repressed until she entered treatment. Indeed, her personal concept of God as beneficially involved in her life evaporated through the course of these traumatic events.

A client's spirituality/religion and systems of meaning are extremely important in therapy. The loss through trauma of previously sustaining systems of meaning constitutes a defining element of Complex PTSD, making the working through of the client's loss of religion (Stipe, 1991) a treatment necessity.

Relevant to Kris, Root (1992) wrote that the further one gets from a traumatic event, the more difficult it becomes to "connect symptoms" to it, because trauma get piled on trauma (p. 231). Kris' adult life developed as a magnetic black hole of trauma (van der Kolk & McFarlane, 1996). In her twenties she injured her back in an automobile accident and became permanently disabled; her children were removed from her for a time by CPS during the McMartin preschool scandal; she suffered repeated humiliation by her husband, which eventually culminated in a divorce. She suffered through extreme stress associated with her oldest daughter who, at one time, had become a prostitute; and experienced the shock of seeing her son immediately after his arm had been torn off in a motor vehicle accident. Further, her mother and her stepfather both succumbed to lung cancer within a two year window.

All of these issues were raw and triggering to her at the beginning of treatment; and the cumulative impact of her trauma left her feeling rejected and punished by God. She also chaffed under the unfair judgment of others who assumed that she must have done something to derserve all her hardship.

The Biblical Book of Job deconstructs Lerner's (1980) *Just World Theory* where "people get what they deserve and deserve what they get" (Burrell, 2008). Traumatized and judged by her church in her 20s, Kris echoed Job's lament to his alleged comforters that he was "not inferior" to them (Job 12:3 and Job 13:2). This was Kris' cry and frustration. Her disability caused others, including people of her church, to look down on her; this sense of rejection interfered with her ability to draw nurturance from the church, itself, and its associated beliefs.

Janoff-Bulman (1985) wrote that trauma shatters three assumptions about life: 1. That we cannot be hurt; 2. That life has purpose and meaning that can be understood; and, 3. That we see ourselves positively (p. 18). Dryden, DiGuiseppe, and Neenan (2003) similarly discussed how these assumptions play out in creating unreasonable expectations about life, naturally leading to impaired distress tolerance and demands for personal comfort and perfection (p. 6).

The idea that one is personally invulnerable to harm is pervasive. “People see themselves as less likely than others to be victims of diseases, crimes, and accidents (Perloff, 1983)” (Janoff-Bulman, 1985, p. 19). Anxiety and even depression logically stem from having one’s belief in their own personal invulnerability overturned. “Once victimized … the experience is now ‘available’ and one sees oneself as ‘representative’ of the subsample of people who are victimized” (Kahneman & Tversky, 1973)” (Ibid., p. 20).

The notion that good things happen to good people and bad things happen to bad people is also pervasive (Kushner, 1981). In addition to believing that “we can prevent misfortune by engaging in sufficiently cautious behaviors … [, on a more] fundamental level, we also believe we are protected against misfortune by being good and worthy people” (Janoff-Bulman, 1985, p. 20). People appear to operate on the basis of such just-world assumptions even when they verbally deny a belief in such a ‘social law’ (Lerner & Ellard, 1983).” (Ibid; van den Boss & Maas, 2009)

Initially in treatment, Kris reported she felt she had been abandoned and rejected by God--a severe loss for her because, as a teenager, she had been very spiritual. Her favorite book at that time was Hannah Whital Smith’s, *Hinds Feet on High Places* (2013/1955). We spent several sessions reading from Smith and processing the issue of spiritual bypass, referring to “a condition in which an individual attempts to avoid, or bypass, necessary work on the psychological plane by jumping directly to the spiritual plane” (Clark, Giordano, Cashwell & Lewis, 2013, p. 87 citing Whitfield, 2003, who coined the term).

One of the most pernicious effects of spiritual bypass involves leaving the person more emotionally wounded and traumatized after involvement with the church than before such involvement. This wounding by otherwise good-intentioned people involves a spiritual violation which Jesus described as a Pharisaic "woe" where they "compass sea and land to make one proselyte … [who in time becomes a] child of hell" whose "last state … is worse than the first" (Matthew 23:15 and 12:45, KJV).

Kris was too honest to live with known hypocrisy and, over time, her bypass of psychological issues stemming from her childhood interfered with her spirituality. To her credit, rather than hunkering down in her religion and narrowing her field of acceptance, she chose to leave the church.

As described above, her bypass had also involved attachment issues which ill-prepared her to deal with the church's rejection when her children were taken from her by CPS in her twenties. We explored how this rejection had triggered old wounds associated with her childhood. Over time, Kris gained a new perspective on the outcome and began to see that she had been victimized by other people's fear born of ignorance and insecurity. She also began to see that her extreme negative beliefs about herself could and would be revised through revisiting and reinterpreting rejections by her father in childhood, and by the church in her mid 20s.

V.

Conclusion

I think Kris' case sheds some light on what Kandel (1998) called a new intellectual framework for psychology, which relates psychological processes to underlying neurophysiological ones. Conceptualizing Kris' Complex PTSD as structurally and functionally embedded neurophysiology associated with chronic coping strategies emerging out of childhood into her adult life has made a great deal of sense out of an otherwise complex case.

Having been emotionally abused most of her life, Kris' current phase of midlife involves adaptive function and learning effective or skillful methods of relating and being. Reliance upon old methods and ways fail because the assumptions upon which the old ways were based no longer prevail.

I'm optimistic about Kris' prognosis at this point. About four months ago, I noticed Kris' posture and attitude had made a remarkable change. Her walk acquired a more youthful spring and she smiled and even laughed with me. She began to engage the exercises and interventions with optimism and we are now, 23 months into treatment as this paper comes to its end, engaging the process of going over her traumas and reevaluating them without re-traumatization or significant resistance.

In fact, in a recent session she humorously spoke about how she would get “flack” from her mother and stepfather when she would smoke around them on account of her “defiling the temple.” Kris' use of humor indicates true progress and healing. Not only is she accessing reality based memory without being defensive, she is also engaging humor as a coping mechanism which involves a measure of flexibility and metacognition.

As pointed out above, we are also working our way through Stahl and Goldstein's (2010) *Mindfulness-Based Stress Reduction Workbook.* I expect our work together to carry on for another 6 months to a year before termination. Another recent example from one of our most recent sessions involved Kris informing me that she conducted a mindful-eating-exercise with a white chocolate cupcake. She laughed and thoroughly enjoined that cupcake and I was compelled to laugh with her. Here, while laughing, she remains squarely within the window of tolerance.

As with parenting where the ultimate goal involves helping our children leave the house and live their own lives, so too with Kris. Phase III of our treatment will involve direct discussions about termination of treatment as well as a review and consolidation of her progress. Phase III remains in the future right now as we are probably about half way through Phase II which involves continued psychoeducation, reprocessing of trauma, and improving styles of coping with the challenges of life.

One clear weakness of my work with Kris involved the length and circuity of treatment. Routinely it felt like we would take one step forward followed by two steps back. For example, after about a year of therapy Kris went into rehab for a month to detox and to wean off any unnecessary prescriptions. She came out of the program feeling great and energized. They taught her basic mindfulness techniques which supplemented what I had been doing with her. However, Earl used her going into rehab as a pretext for taking their son to Oregon over Kris' objection which triggered a relapse in negative self-image and emotional dysregulation. Nevertheless over time, Kris has continued to make progress in this seesaw manner.

Ecker, Tici and Hulley's (2012) recent research and formulation of mechanisms of memory reconsolidation and psychotherapeutic techniques holds out promise for a more parsimonious and efficient psychotherapy. I myself found their method and thought helpful as described above regarding transforming Kris' secret regarding her daughter's birth from a pathogenic implicit and intrusive memory to an explicit contextualized learning.

Kris' prognosis should be good news for others with Complex PTSD because change is possible even in one's fifties after a life filled full of trauma and disappointment. The bad news is that change takes time, intention and what one author called in another context a "long obedience in the same direction" (Peterson, 2012). I commend Kris for her *long obedience in the same direction*—the direction of life, relationships, and family.

VI.

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This book tells the story of one woman's (Kris') heroic struggle to cope with and overcome the effects of early childhood abuse which extended into her adult life. It also gives the reader a deep research-based understanding of why abuse or trauma can affect us so much. Dr. Husen weaves into Kris' story his efforts to understand and help as her therapist. Readers connect with Kris' life. This woman's life mirrors our own experiences to some degree. Her story as illuminated by the research on trauma gives readers a doctoral level understanding of how our experiences in life and our response to those experiences impact six key areas of human development: 1. our ability to concentrate, plan for and reach goals; 2. our ability to access, experience and regulate our emotions; 3. our self-perceptions; 4. our relationships with others; 5 our connection with our own bodies; and, 6. our sense of meaning and/or purpose in life.

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